

CARTERSVILLE ELECTRIC SYSTEM
**CONTRACTORS
MANUAL**

REVISED: MAY 19, 2023



CARTERSVILLE ELECTRIC SYSTEM

Contractor's Manual

Note: Please check www.cityofcartersville.org for the most recent version of this manual.

The **City of Cartersville Electric System (CES)** would like to take this opportunity to thank you for allowing us to serve you. To provide a safe and reliable electrical service connection and to prevent unnecessary delays, we have provided this manual of **CES** specifications. We wish to thank you in advance for your cooperation. The guidelines in this manual should be incorporated into design and construction of services and wiring systems being installed on structures being served by **CES**.

To report outages or unsafe conditions: (770) 387-5631

CES Engineering Contact Personnel:

Clifton Blalock
Engineering Supervisor
Office: (770) 607-6398

Trenton Primus
Engineering Technician
Office: (770) 387-7404

Chad Prater
Engineering Coordinator
Office: (770) 387-7400

Michael Collier
Engineering Technician (Dispatch)
Office: (770) 383-7387

Other Useful Phone Numbers:

Customer Service..... (770) 387-5607

Call this number for information on making an **Application for Electric Service**

Inspections Department.....(770) 387-5600

Call this number for electrical inspections, for scheduling a Development Committee Meeting and for obtaining building / grading / land disturbance permits.

Electric Department.....(770) 387-5631

Call this number to schedule a meeting for electrical service to your construction project

Gas Department..... (770) 387-5642

Water Department.....(770) 387-5653

DISCLAIMER:

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1. Introduction

1.1. Purpose

- 1.1.1. This manual represents the policies and objectives of CES concerning service installations and revenue metering and is intended to provide general guidance to Customers, Engineers, Architects, Contractors and other parties regarding design and installation of electric services and metering equipment on the CES distribution system.
- 1.1.2. This manual is intended to provide general guidance and information but should not be considered a design specification or instruction manual.

1.2. Deviation or Conflict

- 1.2.1. Specific requirements may vary with each installation. Under certain circumstances, CES personnel may require or allow deviation from the standards, policy, and procedures stated in this manual due to safety, reliability, engineering, or maintenance requirements.
- 1.2.2. If any policy in this manual conflicts with City of Cartersville Development Regulations, National Electric Code (NEC), or National Electric Safety Code (NESC), the more stringent requirement shall generally apply.

1.3. Current Version

- 1.3.1. This document may be updated at any time. The current version of this document is located on the City of Cartersville website at www.cityofcartersville.org. Please check this website to be sure you are using the current version of this document.

2. Definitions

- 2.1. **CES:** City of Cartersville Electric System. (also known as Cartersville Electric System or City of Cartersville Electric Department).
- 2.2. **City:** The City of Cartersville, Georgia.
- 2.3. **Customer:** an existing or future customer of CES, or an agent such as a contractor, engineer, architect, electrician or other person involved in establishing or modifying electrical service to a location served by CES. This term is used interchangeably with the term “Customer’s Representative”.
- 2.4. **Customer’s Representative:** see “Customer”
- 2.5. **Distributed Generation:** Generation facilities owned by a CES customer and meeting certain requirements of State Law, City Ordinance, and CES policy.
- 2.6. **Premise:** The land and buildings of a user located on the user side of the service point. As applied to this document and CES policies, the following requirements also apply to a premise:
 - 2.6.1. The premise must have a unique address assigned by the City of Cartersville or Bartow County building official.

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- 2.6.2. The premise must be a stand-alone building or be separated by a floor to ceiling wall with a fire rating acceptable to the fire marshal. Inspection by the fire marshal may be required.
 - 2.6.3. Two or more buildings connected by a breezeway, common roof, or other similar structure attached to the buildings will be considered as one premise.
 - 2.6.4. Electrical circuits that originate from one premise may not pass through, terminate, or exist in another premise.
 - 2.6.5. Other definitions may apply when interpreting or applying NESC, NEC, International Fire Code, or other relevant codes and standards.
- 2.7. Solar Photovoltaic (Solar PV):** System for converting solar radiation into electrical energy. Where connected in parallel with the CES distribution system, Solar PV will be considered Distributed Generation, see definition and requirements for Distributed Generation.

3. General Requirements and Schedule Information

3.1. Coordination and Site Plans

- 3.1.1. Schedule an appointment with a CES engineer or other qualified CES employee prior to installing any customer owned service equipment. The CES engineer or qualified employee, shall review the method of service, type and voltage of service required, location of service, and location of any other CES equipment to be installed. Schedule and any other project requirements will be reviewed at this time. The location of metering equipment and point of service must be designated by a qualified CES employee. CES will not be responsible for the cost associated with relocating electrical equipment. All meetings with CES personnel should be scheduled well in advance. Meetings with CES personnel will typically require a minimum of 24 hours (one business day) notice to schedule. "Same Day" or "Drop-In" meetings should not be expected.
- 3.1.2. To avoid utility conflicts and/or schedule delays, it is the recommendation of CES that all Commercial and Industrial projects served by one or more City of Cartersville Utilities submit plans for review through the City of Cartersville Planning and Development department. Contact the City Planner at 770-387-5614 to schedule a Plan Review Meeting.
- 3.1.3. Site Development Plans that have been approved by the Development Committee reflect what is to be built. If the site plans change, new Site Development Plans must be submitted to the Development Committee for another review. A Stop Work order may be ordered for construction sites using unapproved plans or for construction not according to signed plans that have been approved by the Development Committee.

3.2. Requirements to Energize Service

- 3.2.1. Electrical Inspection. There must be a final electrical inspection made by the governing authority (City of Cartersville or Bartow County). This electrical inspection must be received by the CES dispatcher in order for CES to schedule the work to energize the

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service. CES is prohibited from making the final connection between the CES distribution system and the customer's wiring system until approval by the City of Cartersville or Bartow County has been received.

- 3.2.2. Application for Electric Service. An Application for Electric Service must be made with the City of Cartersville Customer Service Department, located on the first floor of City Hall at 10 North Public Square.
- 3.2.3. Request for Service. A CES Request for Service Form (CES3011) must be thoroughly completed for all services well in advance of required service date. This sheet contains all information concerning class and type of service desired, and is necessary for proper sizing of transformers, services, and metering equipment. No service will be connected until a properly completed Request for Service Form has been submitted to CES. A COPY OF THIS FORM IS CONTAINED IN THE ATTACHMENTS SECTION OF THIS MANUAL, DRAWING #: CES3011.
- 3.2.4. Payment. Payment of any required fees must be received before installation or connection will be scheduled.
- 3.2.5. Site conditions. Site conditions must comply with signed development plans (if applicable). Other conditions that must be satisfied as applicable:
 - 3.2.5.1. Construction area shall be within 2" of final grade, free of any and all debris.
 - 3.2.5.2. The contractor is responsible for all staking, including vertical, required for CES installations including curbs, building footprint, easements, limits of disturbance, and any other required points.
 - 3.2.5.3. When CES facilities are installed in the vicinity of curbs after the curbs are installed, the curbs shall be poured and cured for a minimum of seventy-two (72) hours.
 - 3.2.5.4. Work area must be readily accessible to CES personnel and equipment. The customer is responsible for coordinating the schedule and work of contactors or other utilities to avoid access conflicts.
 - 3.2.5.5. Any trenching or cutting of existing concrete must be repaired by the customer. The customer is responsible for disposal of any concrete or asphalt.
 - 3.2.5.6. CES will backfill and compact trenches and other areas excavated by CES personnel with earth and/or gravel. Any required compaction testing is the responsibility of the customer. CES must be notified of any areas requiring additional fill or compaction within three business days of the backfill and compaction of the area. Failure to notify CES within five business days will be considered as acceptance of backfill by the customer. Any additional backfill or compaction will be the responsibility of the customer.
 - 3.2.5.7. Completion of any work that was agreed to in prior meetings with CES.
- 3.2.6. Note that the final inspection by the governing authority does not constitute acceptance by CES; the final inspection assures that customer wiring meets pertinent provisions of

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the NEC or other applicable codes. CES uses the National Electric Safety Code (NESC) as a guide for service installations. CES reserves the right to impose additional service requirements above and beyond the electrical inspection.

- 3.2.7. The customer or their representative must be present in order for CES to energize any service, except for temp poles.

3.3. Schedule

- 3.3.1. Where electric distribution facilities already exist to serve a facility, a minimum five business day period for final connection should be expected once inspection, application, request for service (load sheet), and other requirements for electric service have been satisfied. CES is required under Georgia law to contact the Utilities Protection Center (UPC) three business days prior to any digging.
- 3.3.2. Where overhead distribution lines must be constructed to provide electric service to a location, please allow a minimum 8 weeks for engineering, coordination with other utilities, material procurement and construction.
- 3.3.3. Where underground distribution lines must be constructed to provide electric service to a location, please allow a minimum of 16 weeks for engineering, coordination with other utilities, material procurement and construction.
- 3.3.4. For large industrial or commercial projects, certain materials may require more than 26 weeks lead time for procurement. These projects can also require a significant amount of engineering and coordination. Please allow sufficient time for material procurement and engineering.
- 3.3.5. Projects requiring CES lines or equipment to be installed in GDOT, railroad, electrical transmission, or other similar rights of way or easements are subject to permit approval prior to CES construction. Once submitted, CES does not have any control over permit approval timeline. Please allow sufficient time for permit submittal and approval if required.

3.4. Use of Service / Additions to Service / Connections to Service

- 3.4.1. Electric services and metering equipment are designed by CES to serve customer's load as it exists when connected to the distribution system; it is the customer's responsibility to notify CES in advance of any significant load additions. This includes but is not limited to air conditioners, heat pumps, and swimming pools.
- 3.4.2. Services will be used only in such a manner so as not to disturb CES service to other customers.
- 3.4.3. The customer's wiring and equipment should be maintained in condition required by relevant authorities and codes.
- 3.4.4. All connections between CES service and customer service entrance conductors and all connections at the secondary terminals of CES distribution equipment shall be made by qualified CES employees. Unauthorized connection by the customer may result in tamper

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fees, fines, and repair costs being assigned to the customer. See section 11.3 for additional details.



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4. Service Availability and General Requirements:

4.1. Class of Service. CES will provide secondary voltages under the appropriate conditions as follows:

4.1.1. From Overhead Lines

- 4.1.1.1. 120V, 1-phase, 2-wire
- 4.1.1.2. 120/208V, 1-phase, 3-wire
- 4.1.1.3. 120/240V, 1-phase, 3-wire
- 4.1.1.4. 120/240V, 3-phase, 4-wire, Open Delta
- 4.1.1.5. 120/240V, 3-phase, 4-wire, Closed Delta (as approved by CES)
- 4.1.1.6. 120/208V, 3-phase, 4-wire, (as approved by CES)
- 4.1.1.7. 480V, 3-phase, 3-wire (as approved by CES)
- 4.1.1.8. 277/480V, 3-phase, 4-wire (as approved by CES)

4.1.2. From Underground Lines

- 4.1.2.1. 120V, 1-phase, 2-wire
- 4.1.2.2. 120/208V, 1-phase, 3-wire
- 4.1.2.3. 120/240V, 1-phase, 3-wire
- 4.1.2.4. 120/208V, 3-phase, 4-wire (as approved by CES)
- 4.1.2.5. 480V, 3-phase, 3-wire (as approved by CES)
- 4.1.2.6. 277/480V, 3-phase, 4-wire (as approved by CES)

- 4.1.3. CES will provide primary voltage supply to customers at their discretion and as project conditions dictate.

4.2. General Service information and Policies.

- 4.2.1. CES will connect only one service to a premise (see definition for premise).
- 4.2.2. CES will install only one revenue meter per customer. Meter readings of two or more meters will not be combined for billing purposes except for certain applications as approved by a qualified CES employee.
- 4.2.3. A qualified CES employee will make the determination which service classes are available at your location. Please confirm service details with a qualified CES employee prior to starting work.
- 4.2.4. To ensure prompt service, the customer or customer's representative must complete a CES Request for Service Form (CES3011). This form provides CES with the information needed to determine if the desired electrical service will be available at the electrical service location. A CES Request for Service must be thoroughly completed for services well in advance of required service date. This sheet contains all information concerning class and type of service desired, and is necessary for proper sizing of transformers, services, and metering equipment. No service will be connected until a properly

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completed CES3011 Request for Service Form has been submitted to CES. A COPY OF THIS FORM IS CONTAINED IN THE ATTACHMENTS SECTION OF THIS MANUAL. See drawing CES3011.

4.3. Grounding

- 4.3.1. Grounds required by NEC must be provided by customer in all cases.
- 4.3.2. All systems (electrical, phone, catv, satellite, etc) shall be grounded in accordance with the latest revisions of the National Electric Code (NEC) and CES Contractor's Manual.

4.4. Minimum and Maximum Service Sizes.

- 4.4.1. All residential and commercial services must meet a minimum kW requirement and the cost of service shall not exceed 3 times the anticipated annual revenue. Should the cost of service exceed 3 times the annual revenue, the customer will be required to pay all or a portion of the construction cost. CES reserves the right to make any adjustments to this calculation where special circumstances exist.
- 4.4.2. CES reserves the right to specify the maximum service size for any particular class of service.
 - 4.4.2.1. Single-phase 120/240V residential services larger than 400A must be reviewed and approved by CES engineering prior to start of construction.
 - 4.4.2.2. Single-phase 120/240V commercial services are limited to 600A unless specific approval has been obtained from CES engineering.

5. Temporary Services

5.1. Connection Fees

- 5.1.1. Residential Temporary Connection Fees are \$45.00 per service.
- 5.1.2. Commercial Temporary Connection Fees are \$90.00 per service.

5.2. Overhead Temporary Services

- 5.2.1. Where possible, overhead temporary service poles should be placed so that CES temporary service wires may be relocated to the permanent service location without splicing the wires. However, customer must contact CES to determine where temporary service structure may be located.
- 5.2.2. Temporary service installations should be constructed with the same care as permanent service installations and in accordance with all applicable electrical and building codes.
- 5.2.3. Temporary service poles and ground rods shall be installed by the customer in accordance with CES specifications. THIS SPECIFICATION IS CONTAINED IN THE ATTACHMENTS SECTION OF THIS MANUAL, DRAWING #: CES 3009

5.3. Underground Temporary Services

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- 5.3.1. Underground temporary services should be located within five feet (5') of the left rear corner of the pad-mounted transformer or other location designated by a qualified CES employee.
- 5.3.2. Temporary service installations should be constructed with the same care as permanent service installations and in accordance with all applicable electrical and building codes.
- 5.3.3. The temporary service pole and ground rod will be provided by the customer. However, due to safety concerns, **this service pole will be installed by qualified CES employees.** THIS SPECIFICATION IS CONTAINED IN THE ATTACHMENTS SECTION OF THIS MANUAL, DRAWING #: CES3008
- 5.3.4. The Customer is responsible for protecting CES stub-ups located on the Customer's site, or within the Customer's work area. The customer will be responsible for all costs to repair, extend, or relocate the stub-up if it is damaged, or if the site elevation (cut or fill) is significantly changed by the customer.

6. Overhead Services

6.1. General Requirements.

- 6.1.1. Availability and class of overhead service should be confirmed with qualified CES employee before construction begins.
- 6.1.2. The point of connection between CES service drop and customer wiring should be located at a point convenient to both parties; however, CES reserves the right to specify the point of connection.
- 6.1.3. To prevent problems and delays, service points should be coordinated with CES engineering well in advance of date service is required. The point of connection must provide clearances as shown on the appropriate drawings in this manual. The point of connection should not be more than twenty-five feet (25') above final grade unless necessary to provide required clearances. SEE DRAWING #'S: CES 3004, SHEET 1 OF 3, SHEET 2 OF 3 & SHEET 3 OF 3.

6.2. Attachment Hardware.

- 6.2.1. CES will provide the hardware necessary for attaching the service drop to the building. The customer is responsible for installing hardware in a secure manner. The Customer may provide attachment hardware subject to CES approval. For attachment points other than service masts, typical attachment hardware will be 1/2" diameter or greater eye bolt or toggle bolt that extends through a roof joist, rafter, or other solid lumber framing member.
- 6.2.2. The attachment point must be securely fastened and/or supported by structural members. Screw-eyes or screw in "House Knobs" cannot be used.

6.3. Service Mast, Conduit, and Service Entrance Conductors.

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- 6.3.1. General service conductor and conduit requirements are listed in Section 8 of this document.
- 6.3.2. As required by NEC, the service mast must be capable of safely withstanding the strain imposed by the service drop or overhead service conductors.
- 6.3.3. CES requires all overhead service attachment points to safely withstand a minimum of 200 pounds of force in any direction. Additional bracing, guying, or other requirements may apply depending on the specific circumstances of the service.
- 6.3.4. The grounded conductor of service entrance conductors shall be plainly marked, unless it is white, neutral gray, or bare.

7. Underground Services

7.1. General Requirements

- 7.1.1. Availability and class of underground service should be confirmed with CES before construction begins.
- 7.1.2. To prevent delays, underground fees and facilities charges (lot fees) should be paid well in advance of the required service date.
- 7.1.3. SEE DRAWING #: CES3007 for typical underground residential service.
- 7.1.4. The point of connection between CES service lateral and customer wiring shall be determined by a qualified CES employee.

7.2. Requirements for pad-mounted transformers:

- 7.2.1. Barriers or Bollards. Any pad-mounted transformer subject to vehicular traffic shall have six-inch (6") protective barriers or bollards, filled with concrete, four feet (4') above final grade installed by customer / contractor around each transformer and approximately three feet (3') from transformer corners and must not impede the opening of the transformer doors or conflict with the meter pedestal.
- 7.2.2. Transformer Pad. Please refer to DRAWING #'S: CES3012 & CES3013 for pad specifications and dimensions. CES will provide the concrete pad.
- 7.2.3. A qualified CES employee will determine transformer location as well as where conduits should be located relative to the transformer pad.
- 7.2.4. See Section 12 for vegetation restrictions and clearance requirements around pad mounted equipment including transformers.

7.3. Service Entrance Conduit and Conductors.

- 7.3.1. General service conductor, conduit, and hardware requirements are listed in Section 8 of this document.
- 7.3.2. Surface mounted conduit must be securely fastened to the wall within twelve inches (12") of the meter socket and six inches (6") of the final grade level.

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- 7.3.3. For three phase underground services, the customer shall provide the service cable, conduit, metallic metering conduit, and bollards per CES specifications. REFER TO THE FOLLOWING SPECIFICATIONS IN THIS MANUAL, DRAWING #: CES 3001 & CES 3006.
- 7.3.4. For three phase underground services that are being served from an overhead transformer bank, the customer shall provide the service cable, conduit, metallic metering conduit, and bollards (as required) per CES specifications. The customer is responsible for installing conduit and attaching to CES pole. SEE DRAWINGS: CES3001 & CES3017
- 7.3.5. For three phase underground services (served from overhead or underground transformers), it is the responsibility of the Customer to notify the CES Engineering Department of secondary service conductor size and number of conductors that are requested per phase. Refer to Section 8 for acceptable wire types and the maximum number of service runs allowed per service size.
- 7.3.6. CES will provide and install standard lugs to make final connections of customer service to CES distribution. Refer to Section 8 for connector details.
- 7.3.7. CES may refuse to connect service conductors that have a number of runs, type, or size other than those listed as acceptable in this manual. Refer to “Service Conductors” in section 8 for the maximum number of service runs, conductor type, and conductor allowed per service size.
- 7.3.8. CES will install underground single-phase commercial services up to and including 600 Amp services and at lengths up to one hundred feet (100'). The customer is responsible for installing service conduit(s) from the service point to the transformer, property line, or city right-of-way as required by CES Engineering Department. Underground services will be governed by the appropriate reimbursement or facilities policy of CES. Please contact the CES Engineering Department for the latest policy information. SEE DRAWINGS: CES3003 & CES3016 for typical single phase, underground meter installations.

8. Service Conductors, Conduit, and Hardware.

8.1. Conductor Size, Type, and Number of Runs.

- 8.1.1. The following conductor sizes are allowed: 2 AWG, 1/0 AWG, 2/0 AWG, 3/0 AWG, 4/0 AWG, 250 kcmil, 350 kcmil, 400 kcmil, 500 kcmil, 600 kcmil, 750 kcmil. (NOTE: “kcmil” is also known as “MCM”). The allowed conductor sizes refer only to standard concentric conductors. Compressed or compact conductors may be used with CES approval but their use may result in delays in connecting service. CES is not responsible for delays in connecting service when sizes or types of wire other than those listed above are used.
- 8.1.2. Service Conductors shown above can be either stranded copper or stranded aluminum.
- 8.1.3. Maximum number of underground service runs allowed per service size:
 - 8.1.3.1. Up to and including 400 amp 1 run

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8.1.3.2.	401 amp to 600 amp	2 runs
8.1.3.3.	601 amp to 1000 amp	3 runs
8.1.3.4.	1001 amp to 1200 amp	4 runs
8.1.3.5.	1201 amp to 1600 amp	5 runs
8.1.3.6.	Greater than 1600 amp	Coordinate with CES Representative

8.2. Connectors.

- 8.2.1. For service conductors that meet the requirements of section 8.1 above, CES will provide the connectors to terminate customer owned three phase service conductors at the power transformer. Any deviation from the conductor sizes requires prior approval from a CES representative.
- 8.2.2. If compacted or compressed conductors are used, the customer may be required to provide appropriate UL listed lugs for termination by CES personnel. CES reserves the right to inspect and approve customer provided lugs prior to installation.

8.3. Conduit and Straps.

- 8.3.1. Conduits for service masts used as an attachment point for CES service conductors shall be Rigid Galvanized Steel with a minimum trade size of 2 inches.
- 8.3.2. Conduit for underground service laterals shall be a minimum of two and one half inch (2 1/2") trade size.
- 8.3.3. Conduit for underground service laterals shall extend vertically downward twenty-four inches to thirty inches (24" to 30") below final grade level. The customer must extend the conduit below or beyond the concrete footing so as to provide a minimum of six inches (6") of clearance between the concrete and the conduit end.
- 8.3.4. Conduits used for metering circuits shall be Rigid Galvanized Steel or Intermediate Metal Conduit. Other conduit types are not allowed. Minimum conduit trade size is 1.5 inches.
- 8.3.5. A spare conduit is allowed for underground services.
- 8.3.6. Conduit straps for service masts and service entrance conduit shall be the correct size for the conduit and shall be installed to fully support the weight of the conduit system and conductors. Service masts shall not use the meter socket as a support structure. Other service entrance conduits shall not use the meter socket as a support structure except as specifically allowed by NEC or other portions of this manual.
- 8.3.7. Conduit straps shall be attached directly to the face of the supporting structure. If space exists between the conduit and the face of the supporting structure, install blocking between the conduit and supporting structure as required to extend the supporting structure to the conduit. No gap shall exist between the strap and the mounting surface and/or blocking.
- 8.3.8. Customer owned electrical conduits attached to CES pole.
 - 8.3.8.1. No more than 2 customer owned conduits can be attached directly to CES pole. See drawing CES3017, figure 1.

DISCLAIMER:

8.3.8.2. No more than 3 customer owned conduits can be attached to CES pole if using construction as shown on drawing CES3017, figure 2.

8.3.9. Specific requirements for overhead services are listed in Section 6.

8.3.10. Specific Requirements for underground services are listed in Section 7.

8.4. Hardware for Meter Sockets and Conduit Straps.

8.4.1. The following hardware shall be used for mounting meter sockets, instrument transformer cabinets, and conduit straps.

8.4.1.1. Metal anchors - in brick or solid concrete

8.4.1.2. Toggle bolts - in other masonry or wood siding

8.4.1.3. Wood screws - in 2" x 4" studs, log walls or other solid lumber

8.4.1.4. All screws and bolts used to secure any socket or cabinet shall be a minimum of 1/4" stainless steel. A minimum of four (4) fasteners shall be installed on any socket or cabinet.

8.4.2. All hardware shall be of sufficient strength and quantity to securely withstand the strain imposed by conductors, conductor attachment points, and meter installation and/or removal.

9. Distributed Generation (including Solar photovoltaic)

9.1. Application Process

9.1.1. Customers desiring to interconnect and/or sell electrical energy to CES produced by a distributed generation facility must meet certain eligibility requirements as defined by applicable State Law, City Ordinance, and CES policy.

9.1.2. Prior to interconnecting a distributed generation facility, the customer must complete and have approved the following documents as required by city ordinance:

9.1.2.1. Application for Interconnection of Distributed Generation Facility.

9.1.2.2. Interconnection Agreement.

9.1.2.3. Electrical power exchange Agreement. (Note: CES currently uses a combined Power Exchange-Interconnect Agreement).

9.2. Distributed Generation Equipment Requirements:

9.2.1. Detailed equipment requirements are described in the Application for Interconnection of Distributed Generation Facility, and Interconnect and Power Exchange agreements.

9.2.2. In addition to other applicable standards, distributed generation equipment must meet current UL1741 and IEEE1547 requirements.

DISCLAIMER:

- 9.2.3. The Customer must provide a manual, lockable, load break disconnect switch that provides a visible air gap to provide electrical separation between the Customer's system and CES facilities.

10. Metering Requirements

10.1. General Requirements.

- 10.1.1. Metering is typically performed at secondary distribution voltages. See Section 4 for standard secondary distribution voltages.
- 10.1.2. CES will furnish, test and maintain adequate revenue metering equipment to accurately measure the customer's use of electrical energy.
- 10.1.3. All meter locations and installation methods must be approved by qualified CES personnel.
- 10.1.4. Only ringless meter sockets may be installed. Ring type meter sockets shall not be used. Where electrical service has been disconnected from a location with a ring type meter socket, CES may require the meter socket to be replaced with a ringless type meter socket. See Section 10.5 for additional meter socket specifications.
- 10.1.5. Any metering equipment furnished by CES is to be installed by the customer (meter sockets, meter cabinets, etc.) and will be supplied as complete units in good operating condition. This equipment is the property of the customer and shall be used only for metering CES customers. Access will be controlled by CES.
- 10.1.6. Connections to all meters, current transformers, or metering equipment which affect the accuracy of these devices, shall be made by a qualified CES employee. CES will control access to this equipment.
- 10.1.7. Non-current-carrying metal parts of meter sockets and current transformer cabinets shall be bonded to the service grounded conductor (neutral) in the enclosure. Grounding electrode conductors shall not originate in, pass through, or be attached to meter sockets or current transformer cabinets.
- 10.1.8. Meter sockets and current transformer cabinets shall not be used as junction boxes or race-ways for the connection of branch circuit or feeder conductors, or for the connection of sub-sets of service conductors supplying separate service locations for the same or different premises.
- 10.1.9. Where aluminum conductors are terminated in meter sockets or other service or metering equipment, inhibitor of the non-grit type shall be used in each conductor terminal and around the circumference of each conductor, including the grounded conductor (neutral).
- 10.1.10. Only one conductor shall be permitted in each terminal of meter sockets.
- 10.1.11. For safety reasons, CES requires that the customer must provide and install a disconnect switch on the line side of the any self-contained meter for all 480 volt services.

10.2. Mounting and Labeling of Meter Sockets and Metering Equipment Cabinets.

DISCLAIMER:

- 10.2.1. Meter sockets are listed as surface mounted equipment and must be installed as such. No other method will be approved.
- 10.2.2. To insure safety, accuracy, and reliability of service it is necessary that meter sockets and metering equipment cabinets be securely installed in level and plumb position.
- 10.2.3. Meter sockets, instrument transformer cabinets, and conduit straps shall be installed with hardware as specified in Section 8.
- 10.2.4. In order to avoid delays in providing service, for meter sockets installed on multi-unit buildings (apartments, condominiums, or commercial) both the building and the building unit served must be accurately, clearly, and permanently labeled before meters are installed. Each meter socket position must be labeled on both the inside and outside surfaces with letters or numbers at least one inch (1") in height of a contrasting color. Painted numbers or numbered stickers to be used. Labeling with a permanent marker is not permitted.
- 10.2.5. Proof of electrical permit will be required before CES issues any metering equipment. Equipment issued must be installed at location listed on permit.

10.3. Metering Equipment Locations

- 10.3.1. Metering equipment shall be located on the outside of the customer's building. Indoor installation of metering equipment, including equipment rooms or meter rooms, is not allowed.
- 10.3.2. In certain circumstances, CES personnel may approve or require metering equipment to be installed on an approved pedestal adjacent to the CES pad-mounted transformer. Meter socket and pedestal, if instructed will be provided by CES. The customer must install these devices as per DRAWING #: CES3006.
- 10.3.3. Meters and meter sockets will not be installed on pad-mounted transformers.
- 10.3.4. Current transformers shall be located outdoors.
- 10.3.5. For locations where permission has previously been granted by CES to locate metering equipment indoors, adequate lighting shall be provided to allow for safe installation, operation, and testing. The customer is responsible for furnishing, installing, and maintaining all boards necessary for mounting metering equipment on indoor installations. Such boards must be 3/4" exterior grade plywood.
- 10.3.6. Meter sockets and current transformer cabinets shall not be located in coal or wood bins, sheds, attics, bedrooms, bathrooms, toilet rooms, kitchens, stairways, carports, patios, furnace rooms, basements where the only entrance is through a trap door, or in any location where there is less than six feet, six inches (6' 6") of headroom.
- 10.3.7. Meter sockets and current transformer cabinets shall be located so the center will be between 3'-6" and 5'-6" above final grade level. These dimensions also apply with respect to the floor where special permission has been obtained to locate the metering equipment indoors.

DISCLAIMER:

- 10.3.8. Metering equipment shall not be installed within three feet (3') of any gas meter, gas regulator, or gas fuel line. Gas utility regulations may be more stringent and may require additional separation. Please consult with the natural gas utility to determine appropriate clearances between electrical service equipment and natural gas facilities.
- 10.3.9. Metering equipment should not be installed adjacent to a driveway, walkway, parking lot or any location that will subject the meter to damage. If CES personnel determine that the meter location is subject to damage, the customer may be required to furnish and install protective barriers or enclosures to prevent damage to the equipment.
- 10.3.10. Metering accuracy is of most importance to CES and its customers. Therefore, the Meter Department Supervisor shall have the option to disallow any meter location he/she determines may cause erroneous registration.

10.4. Work Space Requirements.

- 10.4.1. See Section 11 for CES access requirements to metering equipment and other CES equipment.
- 10.4.2. See Section 12 for work space requirements around CES metering equipment and other CES equipment.
- 10.4.3. CES reserves the right to disconnect power without notice to locations that do not have adequate work space around CES metering equipment.

10.5. Specifications for Meter Sockets

- 10.5.1. Customer furnished equipment shall be UL listed, and the label, symbol, or other identifying mark used by the testing laboratory shall be affixed to the unit.
- 10.5.2. Each meter socket position shall be rated not less than the rating of the service equipment when used on single-family dwellings. When multi-position meter sockets are used on multi-family dwellings, each meter socket position shall be rated not less than the ampacity of the service or feeder conductors connected to the load-side of the socket position.
- 10.5.3. Line-side connectors of meter-socket assemblies to be connected to CES-owned underground service laterals may be obtained from CES. Connectors provided by the customer must be approved by CES. The main bus of assemblies so connected shall be rated not less than 100 amperes multiplied by the number of meter positions in the assembly and not more than 1000 amperes.
- 10.5.4. Line-side connectors shall be designed, tested, and listed (UL486B) for the conductors (size and number) utilized in the assembly. Recommended torque values for all connectors shall be clearly marked in the compartment where the terminal is located. All conductors' strands shall be contained beneath the connector pressure device (set screw, pad, etc.).
- 10.5.5. All meter socket jaws shall be spring reinforced.

DISCLAIMER:

- 10.5.6. Only ringless meter sockets may be installed. Ring-type meter sockets shall not be used. Where existing ring type sockets are already in service, they must be equipped with CES approved screw-type sealing rings.
- 10.5.7. Terminals for more than one conductor and terminals used to connect aluminum conductors must be of a type approved for the purpose. CES will not terminate more than one conductor (CES-owned underground service lateral) under one pressure device (set screw, pad, etc.).
- 10.5.8. Conductors carrying unmetred energy shall not be contained in the same compartment or raceway with conductors carrying metered energy.
- 10.5.9. Units installed outdoors must be of weatherproof (NEMA Type 3R) construction. A unit is considered to be outdoors unless it is installed within the confines of the main structure of the building and totally protected from the weather.
- 10.5.10. Multi-position customer furnished meter sockets shall be constructed such that the line-side wiring compartment is separate from compartments housing service equipment or meter sockets and is accessible without having to remove any meter(s). Each individual meter position's cover shall be removable without having to remove any other meter(s).
- 10.5.11. The customer shall be responsible for all maintenance of meter sockets.

10.6. Metering Installations 225 Amperes or Less for Each Individual Meter Position:

- 10.6.1. A standard self-contained UL listed meter socket shall be installed by the customer. Meter socket may be obtained from CES or supplied by customer.
- 10.6.2. See drawings CES3002, CES3014, and CES3015 for typical meter socket installation.
- 10.6.3. When more than one metering position is needed, as in apartments, multiple ganged meter sockets or meter packs must be used. All meter sockets or meter packs must be UL rated. These units must be installed to the following specifications: Refer to drawing # CES3018 and CES3019 for recommended meter installation which uses multiple individual meter sockets.
- 10.6.4. See section 6 for specific overhead service requirements.
- 10.6.5. See Section 7 for specific underground service requirements.
- 10.6.6. See Section 8 for conductor and conduit requirements.

10.7. Metering Installations Greater Than 225 Amperes for Each Individual Position:

- 10.7.1. When the service entrance conductor ampacity is greater than 400 amperes, current transformers furnished by CES shall be used.
- 10.7.2. At the discretion of CES Engineering Department Supervisor and Meter Department Supervisor, commercial services up to 600 amp may be self-contained and no instrument transformers will be used.

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- 10.7.3. Current transformers may be issued to the customer for installation or installed by CES employees. When installed by CES employees, the customer may be required to install a device for the purpose of mounting the transformers. A transformer rated meter socket shall be furnished by CES and installed by the customer.
- 10.7.4. The customer shall furnish and install a one and one-half inch (1-1/2") trade size rigid metal conduit or intermediate metal conduit from a point within twelve inches of the current transformers into the meter socket or test switch cabinet. A qualified CES employee will determine where to mount the conduit.
- 10.7.5. The maximum allowable distance from the meter location to the instrument transformers will be determined by a qualified CES employee. A maximum of two (2) 90-degree bends or equivalent is allowed in each run of conduit. All conduit ends must be reamed to protect the meter control cable. All conduit fittings and joints must be threaded and listed for grounding purposes. SEE DRAWING: CES3006
- 10.7.6. CES metering transformers shall not be located in the customer's switchgear, unless approved in advance by qualified CES personnel. Metering transformers installed in customer's switchgear will typically only be approved when no other metering installation acceptable to CES is possible. When metering transformers are approved to be located in the customer's switchgear, they shall be installed by the switchgear manufacturer at the customer's expense. Such transformers shall be installed ahead of all load and be in a separate compartment of the switchgear of each service. Each compartment shall be equipped with a hinged and sealable door and each compartment shall be located such that CES metering personnel will have clear and unobstructed access to the transformers. Access shall be controlled by CES.
- 10.7.7. On multi-unit buildings where a wiring trough is utilized in feeding several customers, and one or more of these customers is metered with transformers, CES requires that a disconnect switch be installed by the customer and readily accessible to CES and on the load side of the transformer cabinet(s). The disconnect device shall accept a CES lock. The purpose of this switch is to enable CES to disconnect and reconnect service to such customers without interruption of other customers fed from the same trough. SEE DRAWING: CES3001 & CES3003.
- 10.7.8. The Customer is responsible for providing and installing lugs to make connection of customer service in wiring troughs.

10.8. Metering at Voltages Greater than 600 volts.

- 10.8.1. Service at voltages greater than 600 volts is subject to special negotiations between the customer and CES. The meter and service installations for this type of service require special engineering consideration. A CES engineer should be consulted well in advance of the time such service will be required so that necessary design and construction work and equipment availability may be properly coordinated.

DISCLAIMER:

11. CES Access to Equipment / Meter Tampering.

11.1. CES Access to Meters and Metering Equipment.

- 11.1.1. CES metering equipment shall be unobstructed and accessible to CES personnel or other authorized city personnel at all times as required by City Ordinance.
- 11.1.2. Metering Equipment shall not be located within an enclosed fence, behind a locked gate or door, or in any other location that is not readily accessible to CES personnel.
- 11.1.3. Metering equipment may be considered obstructed if the customer does not provide or maintain clearances around metering equipment as required by this document and other relevant codes, ordinances, or standards.

11.2. CES Access to Lines and Other Equipment.

- 11.2.1. All CES equipment, including Meters, Transformers, Cable, and other CES owned equipment shall be readily accessible to CES personnel at all times. CES reserves the right to disconnect service without notice to equipment that is not readily accessible to CES personnel. Fees, penalties, and/or fines may apply as allowed by City Ordinance.
- 11.2.2. Most CES lines have a 30' easement around overhead lines and a 15' easement around underground lines. Contact CES prior to any construction in CES easements.

11.3. Meter Tampering and Interference with City Property.

- 11.3.1. It is illegal for any person intentionally and without authority to damage or destroy any meter or metering equipment, or to prevent any meter from properly registering the service supplied by CES, or to divert or otherwise use without authority any service supplied by CES. Violators are subject to a \$250.00 fee by CES plus labor, equipment and material costs as applicable. Violators are also subject to prosecution and/or fines to the fullest extent allowed by City Ordinance. Cutting a meter seal or any other unauthorized access, removal, or alteration to CES metering equipment will be considered as meter tampering.
- 11.3.2. All persons are prohibited from interfering with or disturbing CES electric distribution lines and equipment. Violators are subject to penalties and/or prosecution to the fullest extent allowed by City Ordinance or State Law. Examples of interference or disturbance of CES distribution equipment include but is not limited to:
 - 11.3.2.1. Unauthorized use, manipulation, operation, removal, or relocation of CES equipment or lines.
 - 11.3.2.2. Causing damage to CES equipment or lines.
 - 11.3.2.3. Un-authorized connection to (or disconnect from) CES equipment or lines.
 - 11.3.2.4. Any action that causes a safety hazard involving CES owned lines or equipment.

12. Required Clearance and Workspace Around CES Equipment.

12.1. Overhead Lines and Equipment.

DISCLAIMER:

- 12.1.1. CES requires a minimum clearance of 14 feet in all directions between CES overhead lines and any new sign or billboard. This requirement applies to the system neutral and to all lines over 750V to ground.
- 12.1.2. For overhead lines less than 750V to ground, CES requires a minimum clearance of 16.5 feet over roads, alleys, driveways, and any other area subject to truck traffic. For areas not subject to truck traffic, CES typically requires a minimum clearance of 12.5 feet above ground.

12.2. Pad Mounted Transformers, Switches, and Termination Cabinets.

- 12.2.1. Distance from Eave or Overhang of Building. The State Fire Marshal of Georgia requires that any pad-mounted transformer be installed with at least 10' between the edge of the transformer pad and building, building overhangs, canopies, exterior walls, balconies, exterior stairs and/or walkways connected to the building. Because some transformers overhang the edge of the pad, transformer pads will typically be installed at least 12' from the building to ensure adequate clearances.
- 12.2.2. Distance from Entrance or Exit of Building. The State Fire Marshal of Georgia requires that any pad-mounted transformer be installed with at least 14' between the edge of the transformer pad and any door on the building. Because some transformers overhang the edge of the pad, transformer pads will typically be installed at least 16' from any door on the building to ensure adequate clearances.
- 12.2.3. Distance from Back of Curb or obstruction. CES requires that any pad-mounted transformer be installed with at clearance of at least 3 feet from the edge of the transformer pad to the back of curb or other obstruction.

12.3. Metering Equipment.

- 12.3.1. For safety reasons, metering equipment shall be located so that CES and other electrical personnel are provided level, unobstructed working space.
- 12.3.2. The width of the working space in front of all metering equipment shall be the width of the equipment or 36" whichever is greater.
- 12.3.3. In all cases, the workspace shall permit at least a 90 – degree opening of equipment doors or hinged panels.
- 12.3.4. Where meter sockets or meter equipment cabinets are installed beside, above, or below other equipment, A minimum space of four inches (4") must be maintained between meter sockets and any adjacent equipment. This space must be increased where needed to allow any cabinet or equipment door to open 90 degrees without interfering or contacting metering sockets or metering equipment cabinets. Contact CES for approval prior to installing any meter sockets with spacing less than 4" between the meter socket and adjacent equipment.
- 12.3.5. The depth of the working space in the direction of live parts shall not be less than 3' for equipment operating at less than 250V to ground, and 3'6" for equipment operating at greater than 250V to ground.

DISCLAIMER:

- 12.3.6. The height of this dedicated electrical space extends from ground/floor level to a height 6'6" above the metering equipment.
- 12.3.7. No piping, ducts, or equipment foreign to the electrical installation, such as gas meters, water meters, phone/CATV attachments, etc., shall be located above or below the metering equipment. (This does not prohibit grounding and bonding connections for Phone/CATV).
- 12.3.8. A clearance of at least six feet (6') shall be provided from machinery or devices having moving parts that are not protected by guards, barriers, or other means to prevent physical contact.
- 12.3.9. CES strongly discourages the presence of vines, ivy, or any other creeping or climbing vegetation in the working space. Such vegetation can damage the metering equipment and service equipment, pose a safety hazard for CES personnel, and can create a fire hazard. CES reserves the right to trim, cut, or remove any landscaping interfering with the required workspace without notice.

12.4. Trees and Vegetation

- 12.4.1. Vegetation Planted Near Pad-Mounted Equipment, including Transformers, Switches and Termination Cabinets. CES requires that no trees or shrubs be planted within 10 feet of the front of any pad-mounted equipment or within 4 feet of any other side of a pad-mounted transformer. CES may remove such vegetation without notice. Pad mounted equipment can have more than one "front". Any side with a door, switch handle, or other compartment component that can be opened or operated by CES personnel is considered a "front" of the equipment.
- 12.4.2. CES does not permit any trees to be planted within the right-of-way, on its easements, or on City utility easements. Any trees found in these areas may be removed without notification to owner. Bushes, shrubs, or grasses may be planted in these areas at the owner's risk. CES will not repair or replace landscaping in these areas or areas dedicated to utility use.
- 12.4.3. In areas outside of right-of-way and easements, CES recommends that only low-growth and slow-growth trees be located within 15 feet of an overhead line or within 7.5 feet of an underground line. In no case should trees be planted directly under an overhead power line or directly over an underground power line.

DISCLAIMER:

12.5. Special Circumstances and Other Codes.

- 12.5.1. Certain circumstances, such as proximity to swimming pools, railroads, interstates, navigable waterways, Interstate Highways, State Highways, and other conditions may require additional clearances around CES lines and equipment beyond those stated in this document.
- 12.5.2. Required clearances to CES lines and equipment may be subject to NEC, NESC, or other relevant codes or standards. Clearances may also be adjusted due to Electrical Transmission line clearance requirements, railroad or GDOT permit requirements or other similar restrictions.

13. Customer Utilization Equipment.

13.1. Requirement to Balance Load

- 13.1.1. The customer must balance the load connected across each phase of the service or service bus as nearly as practical.

13.2. Requirements for Motors.

- 13.2.1. All installed motors should have devices to protect the motor and motor circuit from overload and short circuit. In addition, three phase motors should be protected from single-phase operation. Installation of motor protective devices is the responsibility of the customer.
- 13.2.2. Single-phase, 115 V motors having a locked-rotor current less than 40 amps, and single-phase 230 V motors having a locked-rotor current less than 100 amps, may normally be started at line voltage.
- 13.2.3. Single-phase motors having locked-rotor currents exceeding these limits may require special service consideration, and CES engineering must be consulted before purchasing or connecting such motors.
- 13.2.4. Because allowable locked-rotor currents vary at different locations, a CES engineer shall be consulted before connecting poly-phase motors to CES distribution system.
- 13.2.5. CES reserves the right to disallow motors to be started without the application of reduced voltage motor starters. A 25 hp motor or smaller can normally be started without aid of a starter unless problems exist. The starting characteristics of motors larger than 25 hp will be verified by CES engineer to determine if reduced voltage motor starters are needed.

13.3. Requirements for X-Ray, Welders, Power Electronic and similar equipment.

- 13.3.1. The customer should consult with CES prior to purchasing or installing any utilization equipment that has the potential to cause voltage fluctuation, waveform distortion, or other system disturbances.

DISCLAIMER:

- 13.3.2. The customer may be required to install corrective devices or apparatus, limit operation of this equipment, or take other steps to prevent disturbances caused by this equipment from affecting service to other customers.

13.4. Current and Voltage Harmonic Distortion Limits.

- 13.4.1. Certain non-linear loads can cause harmonic distortion. Current and voltage distortion should be limited to the values specified in IEEE519-2014 (or current version).
- 13.4.2. Total Demand Distortions (TDD) should be typically limited to 5% - 20% of the total maximum metered annual demand. The exact limit will depend on the available short circuit current at the customer's location. Contact CES to obtain the TDD limit for a specific location.
- 13.4.3. Voltage Total Harmonic Distortion (THD) should be limited to 8% for delivery voltages less than 1000V and 5% for delivery voltages between 1000V and 69kV.
- 13.4.4. Individual component harmonic levels for both voltage and current are required to be less than the stated total limits above.
- 13.4.5. The customer is responsible for providing and installing any required devices or apparatus, or taking any other necessary action to limit harmonics to acceptable levels.

13.5. Protection for Customer Equipment.

- 13.5.1. The customer shall provide and maintain suitable protective devices to prevent any loss, damage, or injury that might result from single phasing conditions or other fluctuations or irregularity in the supply of energy.
- 13.5.2. To prevent equipment failure and data loss, computers, programmable controllers, and other sensitive devices should be protected against abnormal system conditions by using commercially available AC line conditioners, surge suppressors, or uninterruptible power supplies.

13.6. Emergency or Stand-by Generators.

- 13.6.1. All Emergency or Stand-by Generators, Transfer switches, and other associated equipment must be installed per the requirements of the National Electric Code (NEC), and shall have adequate interlocks or other means to prevent backfeed into CES distribution system.
- 13.6.2. CES may inspect generator installations or require documentation to verify that adequate measures are in place to prevent backfeed into CES distribution system.
- 13.6.3. CES reserves the right to disconnect service without notice or refuse to restore service to any location that poses a safety hazard to CES personnel, the public, or other customers.

13.7. Portable Generators.

- 13.7.1. Portable Generators must be isolated from the CES distribution system. Failure to properly isolate portable generators creates a hazardous condition for CES personnel.

DISCLAIMER:

- 13.7.2. Damage to the Portable Generator and/or fire can result if the portable generator is not properly isolated when power is restored.
- 13.7.3. Portable Generators must be connected to the load in accordance with all applicable codes and the manufacturer's recommendations.
- 13.7.4. CES reserves the right to disconnect service without notice or refuse to restore service to any location that poses a safety hazard to CES personnel, the public, or other customers.

14. Service Interruptions and Outage Restoration.

14.1. General.

- 14.1.1. CES will at all times strive to provide continuous, reliable service as is reasonably practicable; however, CES does not guarantee that electric service will be free from temporary disruptions and outages.
- 14.1.2. Temporary disruptions of service shall not constitute breach of CES service obligations, and CES shall not be liable for damages resulting from such temporary interruptions.

14.2. Outage Restoration.

- 14.2.1. In the event of an outage, CES will restore service as soon as it can reasonably and safely do so.
- 14.2.2. In the event a disruption is caused by conditions on the customer's premises, CES reserves the right to disconnect the customer until unsatisfactory conditions are corrected.

15. Work around CES lines and equipment.

15.1. Georgia Utility Facility Protection Act and High-voltage Safety Act.

- 15.1.1. The State of Georgia has passed the High-voltage Safety Act (46-3-30 G) and the Georgia Utility Facility Protection Act (GUFA) (25-9-1). These laws have been passed to safeguard life and property. Full text of these laws can be found at www.Georgia811.com. In general, they limit how close an individual can get to an electrical line that is energized over 750 Volts as well as define requirements when digging into the earth while in Georgia. Please download these laws at the above website for your information and safety.
- 15.1.2. The Georgia Utility Facility Protection Act (GUFPA) was established to protect the underground utility infrastructure of Georgia. Your familiarity with and adherence to this law is extremely important in assuring the safety of our underground facilities and the general public. GUFPA mandates that, before starting any mechanized digging or excavation work, you must contact Georgia 811 at least 48 hours but no more than 10 working days in advance to have utility lines marked. This law covers activities such as excavation, tunneling, grading, boring, demolition or any similar work. Georgia 811 accepts calls Monday thru Friday, excluding holidays, for normal locate requests. Damage and Emergency locate request may be called in 24 hours a day, seven days a week.

DISCLAIMER:

- 15.1.3. The Georgia Public Service Commission also requires, by law, that anyone doing work in the vicinity of overhead high voltage lines must notify Georgia 811 at least 72 hours in advance, excluding weekends and holidays, so that appropriate arrangements for the completion of required safety precautions.

15.2. Overhead Lines.

- 15.2.1. For work around CES lines and equipment, CES may install insulating covers or other protective means in accordance with the Georgia High-voltage Safety Act and CES policy. In many cases insulating covers or protective means can be implemented at no cost to the Customer. However, CES does reserve the right to charge fees for required labor, equipment, and materials to provide insulating covers or other protective means. In ALL cases, the Customer will be responsible for and damage caused to CES insulating covers or other CES equipment installed as a protective means for work near CES lines or equipment.

15.3. Easements.

- 15.3.1. See Section 11 for typical easements around CES lines and Equipment. Work within CES easements and construction or installation of any facilities within CES easements may require specific permitting and approval from CES.

ELECTRIC

SYSTEM

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DISCLAIMER:

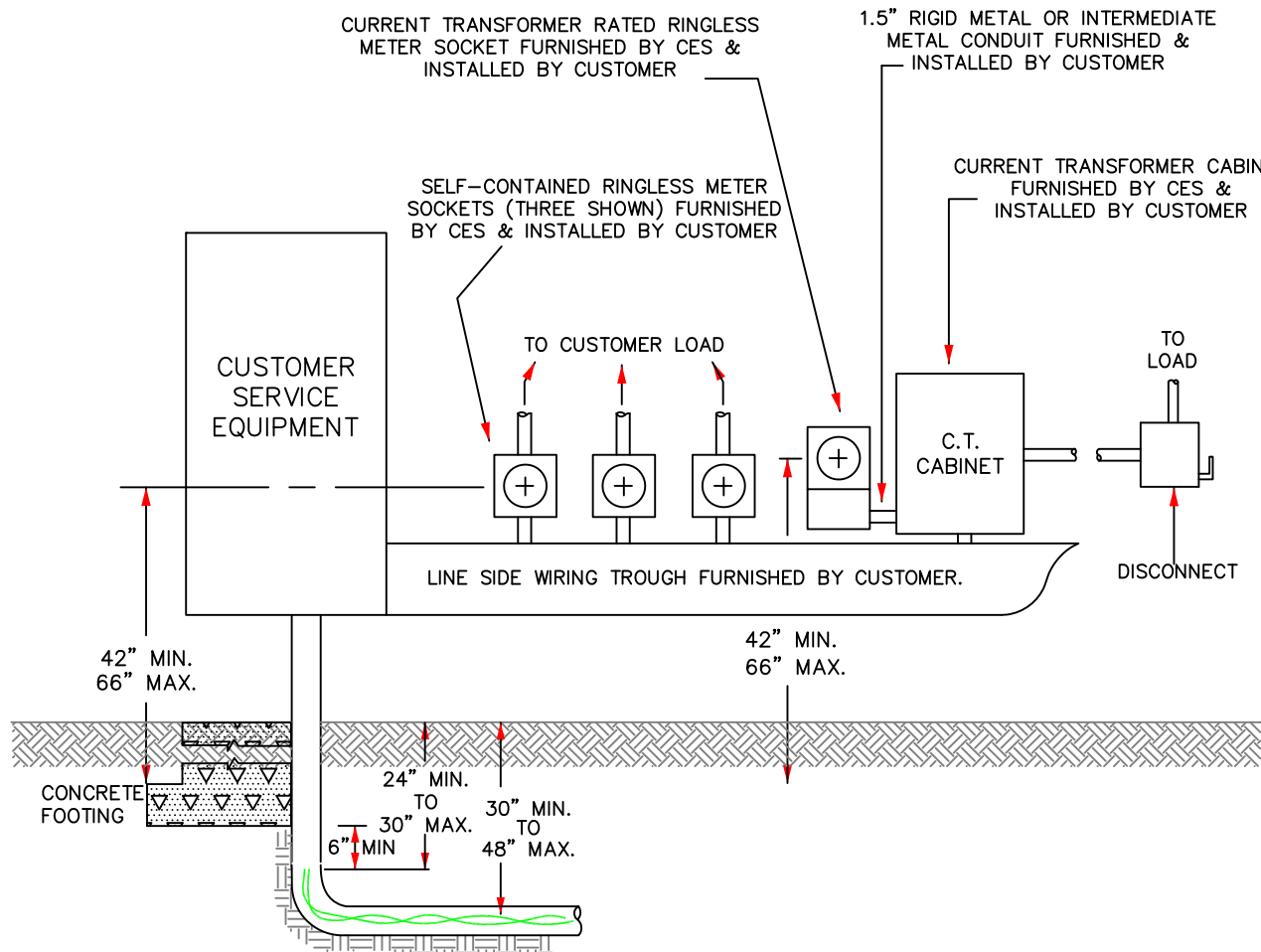
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APPENDIX

DRAWING #	DESCRIPTION
CES3001	COMMERCIAL TROUGH
CES3002	3 PHASE, 200 AMP SELF CONTAINED OVERHEAD METER SOCKET
CES3004 1 OF 3	TYPICAL RESIDENTIAL OVERHEAD SERVICE
CES3004 2 OF 3	TYPICAL RESIDENTIAL OVERHEAD SERVICE
CES3004 3 OF 3	ALTERNATE TWO STORY RESIDENTIAL OVERHEAD SERVICE – REQUIRES CES APPROVAL
CES3006	3 PHASE COMMERCIAL, TRANSFORMER RATED SERVICE
CES3007	TYPICAL RESIDENTIAL UNDERGROUND SERVICE
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CES3010	POWER LEG, 4-WIRE DELTA METER SOCKET
CES3011	REQUEST FOR SERVICE
CES3012	45 TO 1000 KVA PAD SPECIFICATION
CES3013	1000 TO 2500 KVA PAD SPECIFICATION
CES3014	1 PHASE, 2WIRE, 120VAC METER SOCKET
CES3015	1PHASE, 3WIRE, 240VAC METER SOCKET
CES3016	METER PEDESTAL SERVICE INSTALLATION (NON-TRANSFORMER RATED)
CES3017	CUSTOMER OWNED CONDUITS ATTACHED TO CES POLE
CES3018	MULTIPLE METERING SPECIFICATION– OVERHEAD
CES3019	MULTIPLE METERING SPECIFICATION - UNDERGROUND
CES3020	TYPICAL SELF-CONTAINED, MULTI-METER SERVICE AND TROUGH GROUNDING SCHEMATIC FOR TWO TO SIX METERS

DISCLAIMER:

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FOR 3 ϕ SERVICES, CUSTOMER TO FURNISH AND INSTALL
 CONDUIT AND SERVICE LATERALS
 - CONDUIT AND SERVICE LATERAL SIZE MUST MEET CURRENT NEC REQUIREMENTS
 - TOTAL NUMBER OF CONDUIT RUNS MUST BE APPROVED BY CES

FOR 1 ϕ SERVICES, CUSTOMER TO FURNISH AND INSTALL
 2-1/2" (OR LARGER) CONDUIT WITH PULL STRING TO CES DESIGNATED LOCATION
 - CES WILL INSTALL SERVICE LATERAL IN CUSTOMER INSTALLED CONDUIT
 - CUSTOMER TO PROVIDE APPROVED TERMINATION DEVICE INSIDE TROUGH

NOTES:

1. METER SOCKET MOUNTED OUTDOORS.
2. CES TO MAKE ALL SERVICE LATERAL CONNECTIONS AT POLE OR PADMOUNT TRANSFORMER AND ALL METERING CONTROL CABLE CONNECTIONS IN METER SOCKET AND C.T. CABINET. CUSTOMER TO MAKE ALL CONNECTIONS IN WIRE TROUGH.
3. CONDUCTORS CARRYING METERED AND UNMETERED ENERGY SHALL NOT BE ALLOWED IN SAME WIRING TROUGH OR CONDUIT.
4. WORK SPACE REQUIREMENTS ARE DETAILED IN SECTION 12.3 OF CES CONTRACTOR'S MANUAL AND DRAWING CES3004 SHEET 1 OF 3
5. METERBASES MUST BE LABELED - SEE SECTION 10.2 IN CONTRACTORS MANUAL
6. SOIL DIRECTLY BENEATH CONDUIT MUST BE UNDISTURBED OR COMPACTED TO PREVENT SETTLING
7. MINIMUM SEPARATION OF 4" REQUIRED BETWEEN METER BASE(S) AND ANY ADJACENT EQUIPMENT.

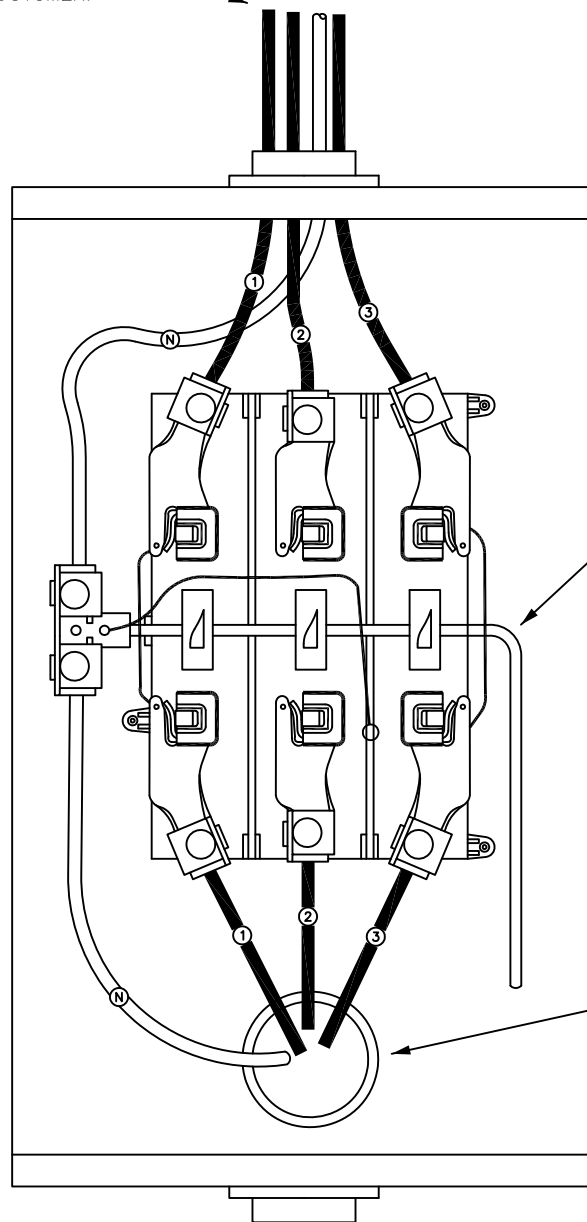
TYPICAL UNDERGROUND COMMERCIAL INSTALLATION WITH MULTIPLE CUSTOMERS ON COMMON SERVICE LATERAL (TROUGH TYPE SERVICE INSTALLATION)

	REVISIONS	CARTERSVILLE ELEC. SYSTEM
	JUNE, 2007	
DATE: MARCH, 2005	OCTOBER, 2018	CES3001

LINE SIDE ENTRANCE
CONDUCTORS FURNISHED
AND INSTALLED BY CUSTOMER.

PLASTIC PROTECTIVE SHIELD
(NOT SHOWN)
MUST BE IN PLACE

COVER
NOT
SHOWN



BY-PASS LEVER
DO NOT OPERATE UNLESS
METER IS IN PLACE.

BOX CONNECTOR
OR BUSHING

NOTE:

1. ON DELTA INSTALLATIONS #3 CONDUCTOR (FAR RIGHT IN PICTURE) IS POWER (HIGH) LEG AND IS THE MIDDLE PHASE CONDUCTOR IN THE DISCONNECT. REFER TO DRAWING CES 3010.
2. FOR 277/480 VAC SERVICES, DISCONNECT MUST BE LOCATED ON LINE SIDE OF METER

SELF-CONTAINED/OVERHEAD METER SOCKET
FOR USE ON 4 WIRE 3 PHASE SERVICES
ALL VOLTAGES UP TO 200 AMPS

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	
DATE: JANUARY, 2007		CES3002

A. GENERAL NOTES

1. OVERHEAD SERVICE DROP AND METER PROVIDED AND INSTALLED BY CES
2. METER SOCKET MAY BE FURNISHED BY CES OR CUSTOMER. ONLY RINGLESS SOCKETS ARE ALLOWED
3. METER SOCKET IS INSTALLED BY CUSTOMER
4. CLEARANCES MUST BE PROVIDED AS SHOWN BELOW OR COMPLIANT WITH LATEST NEC OR NESC REVISION
5. STEEL SERVICE MAST MUST NOT BE OVER 48" FROM EDGE OF ROOF

B. MOUNTING OF METER SOCKET

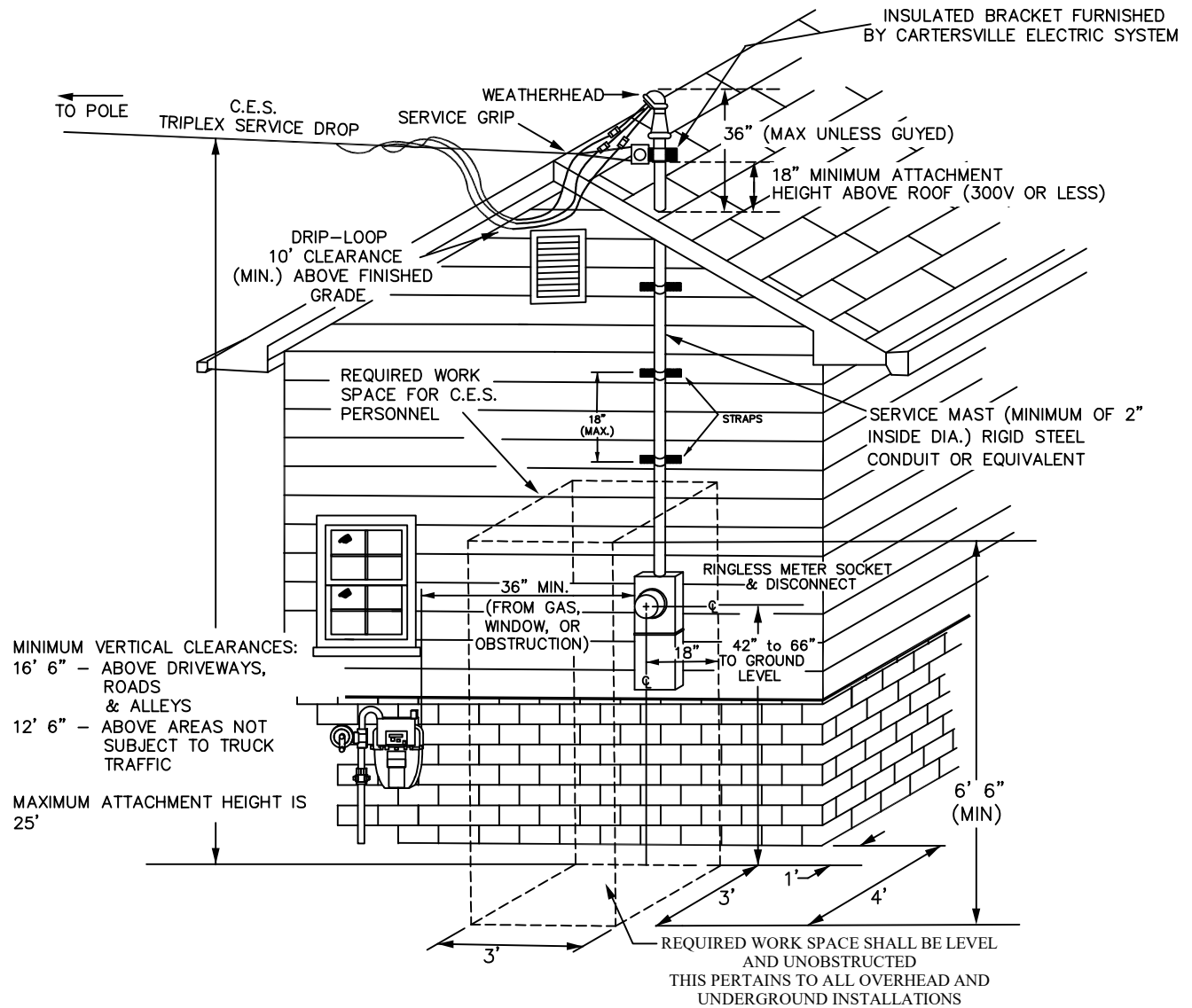
1. UNIT SHALL BE SURFACE MOUNTED, WITH CENTER OF UNIT BETWEEN 3'-6" AND 5'-6" ABOVE FINAL GRADE, IN A LEVEL AND PLUMB POSITION
2. UNIT SHALL BE FASTENED TO BUILDING SECURELY USING METAL ANCHORS (FOR BRICK AND CONCRETE), TOGGLE BOLTS (FOR WOOD SIDING) OR WOOD SCREWS (FOR 2'X4' STUDS, LOG WALLS OR OTHER SOLID LUMBER). ALL SCREWS OR BOLTS SHALL BE 1/4" DIAMETER (MIN) STAINLESS STEEL. A MINIMUM OF FOUR FASTENERS SHALL BE USED TO MOUNT METER SOCKET.

C. SERVICE DROP ATTACHMENT

1. DEVICE FOR ATTACHING SERVICE DROP TO BUILDING SHALL BE FURNISHED BY CES AND INSTALLED SECURELY BY CUSTOMER ON STEEL SERVICE MAST

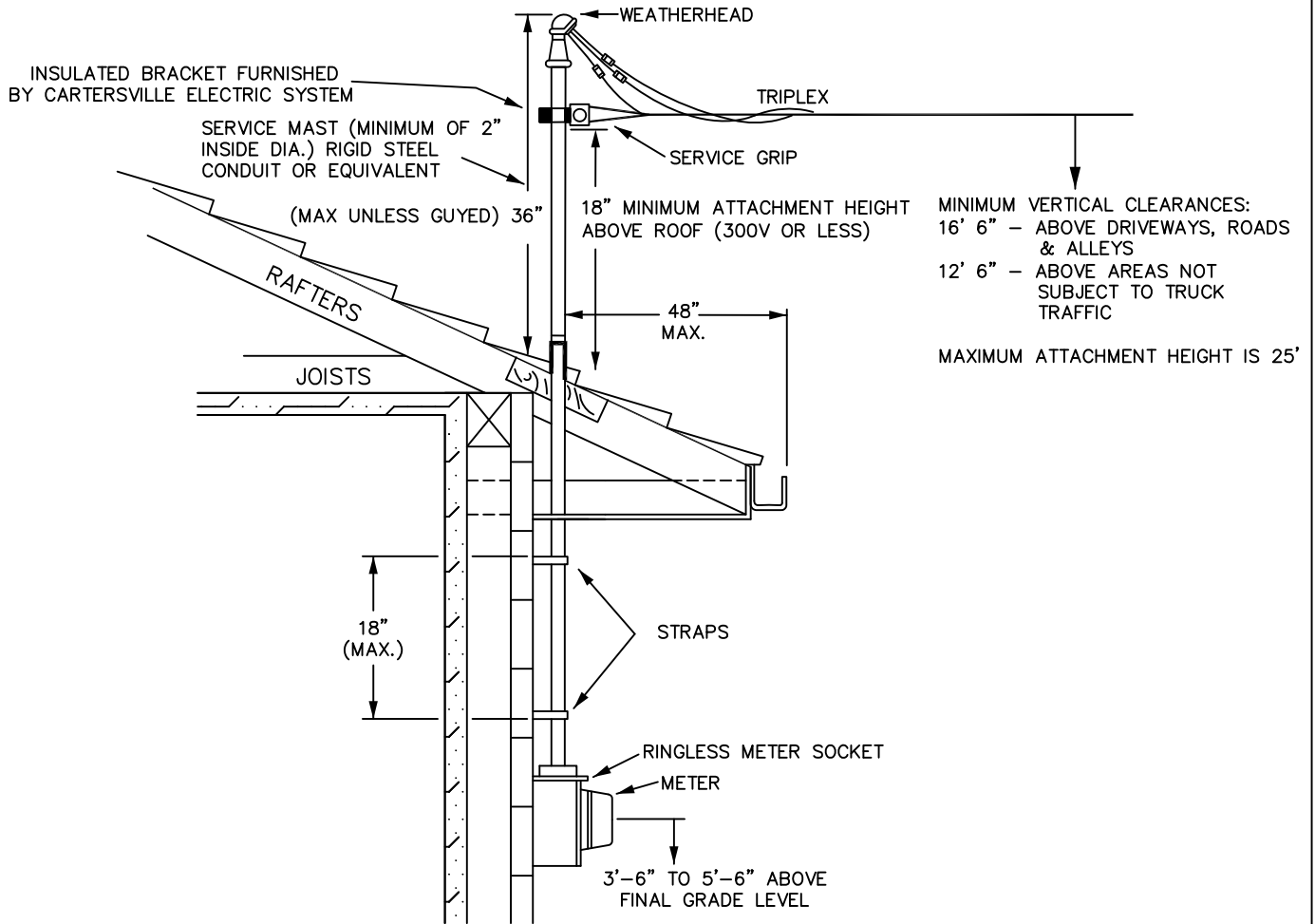
D. METER LOCATIONS

1. ALL METER LOCATIONS MUST BE APPROVED BY CARTERSVILLE ELECTRIC SYSTEM.



TYPICAL RESIDENTIAL OVERHEAD ELECTRICAL SERVICE INSTALLATION

	REVISIONS JUNE, 2007	CARTERSVILLE ELEC. SYSTEM CES3004 SHEET 1 OF 3
	OCTOBER, 2018	
DATE: MARCH, 2005	MARCH, 2021	



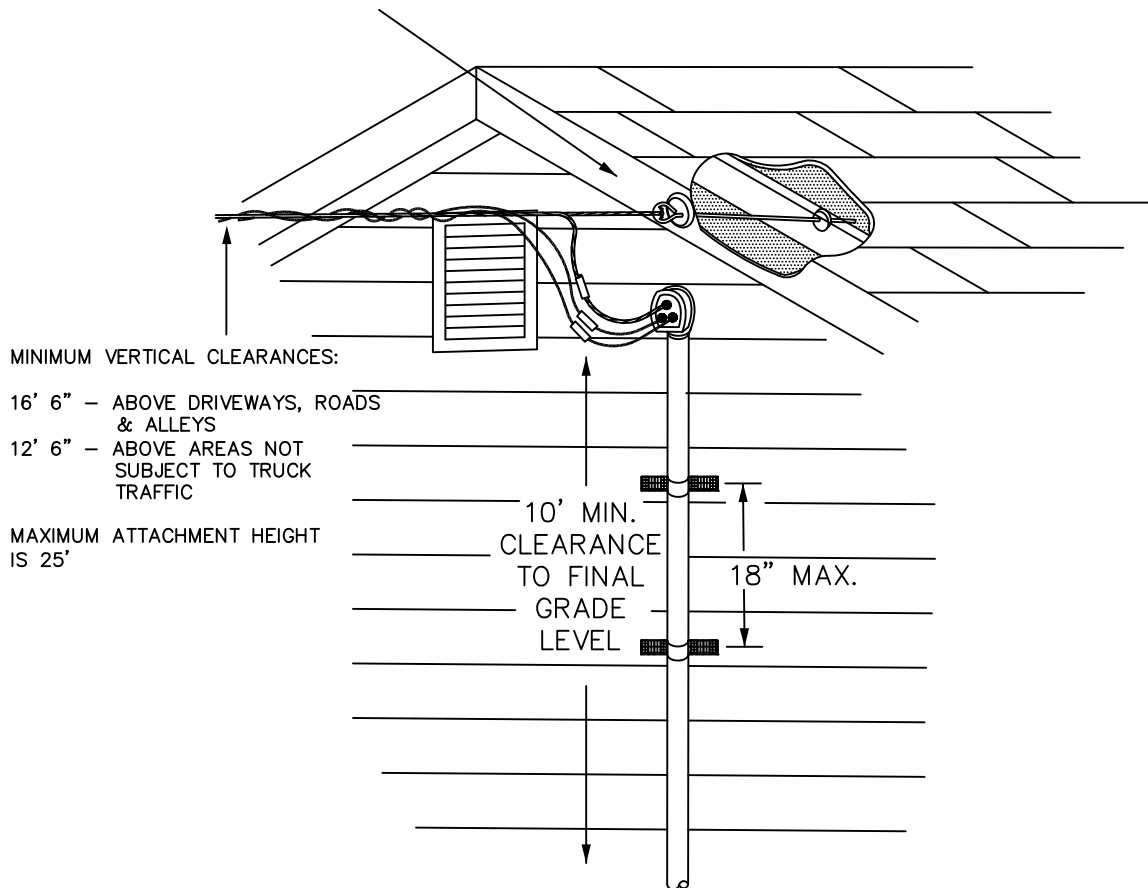
MAST HEIGHT AND LOCATION

1. MASTS TALLER THAN 36 INCHES ABOVE ROOF SHALL BE GUYED.
2. THE LENGTH OF SERVICE DROP EXTENDING OVER ROOF (INCLUDING EAVES AND GUTTERS) SHALL NOT EXCEED 48 INCHES.
3. ALL METER LOCATIONS MUST BE APPROVED BY CARTERSVILLE ELECTRIC SYSTEM

TYPICAL RESIDENTIAL OVERHEAD ELECTRICAL SERVICE INSTALLATION

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	NOVEMBER, 2006	CES3004
DATE: MARCH, 2005	OCTOBER, 2018	SHEET 2 OF 3

EYE OR TOGGLE BOLT 10" TO 24" (5/8" MINIMUM DIAMETER). CUSTOMER SHOULD EXTEND BOLT THROUGH FACIA TO ROOF JOIST, RAFTER, OR SOLID LUMBER AND FASTEN SECURELY. DO NOT USE THREAD THRU INSULATOR, SCREW TYPE HOOK, OR "HOUSE KNOBS".



NOTES:

1. DEVICE FOR ATTACHING SERVICE DROP TO BUILDING IS FURNISHED BY CES AND INSTALLED SECURELY BY CUSTOMER AS NOTED ABOVE.
2. CONNECTIONS BETWEEN SERVICE ENTRANCE CONDUCTORS AND SERVICE DROP SHALL BE MADE BY CES BELOW WEATHERHEAD, FORMING A DRIP LOOP.
3. THIS TYPE SERVICE INSTALLATION SHOULD BE AVOIDED IF POSSIBLE AND MUST BE PRE-APPROVED BY A QUALIFIED CES EMPLOYEE. SEE DRAWING CES3004 SHEET 1 OF 3 AND CES3004 SHEET 2 OF 3 FOR TYPICAL ONE AND TWO STORY RESIDENTIAL SERVICE INSTALLATIONS.

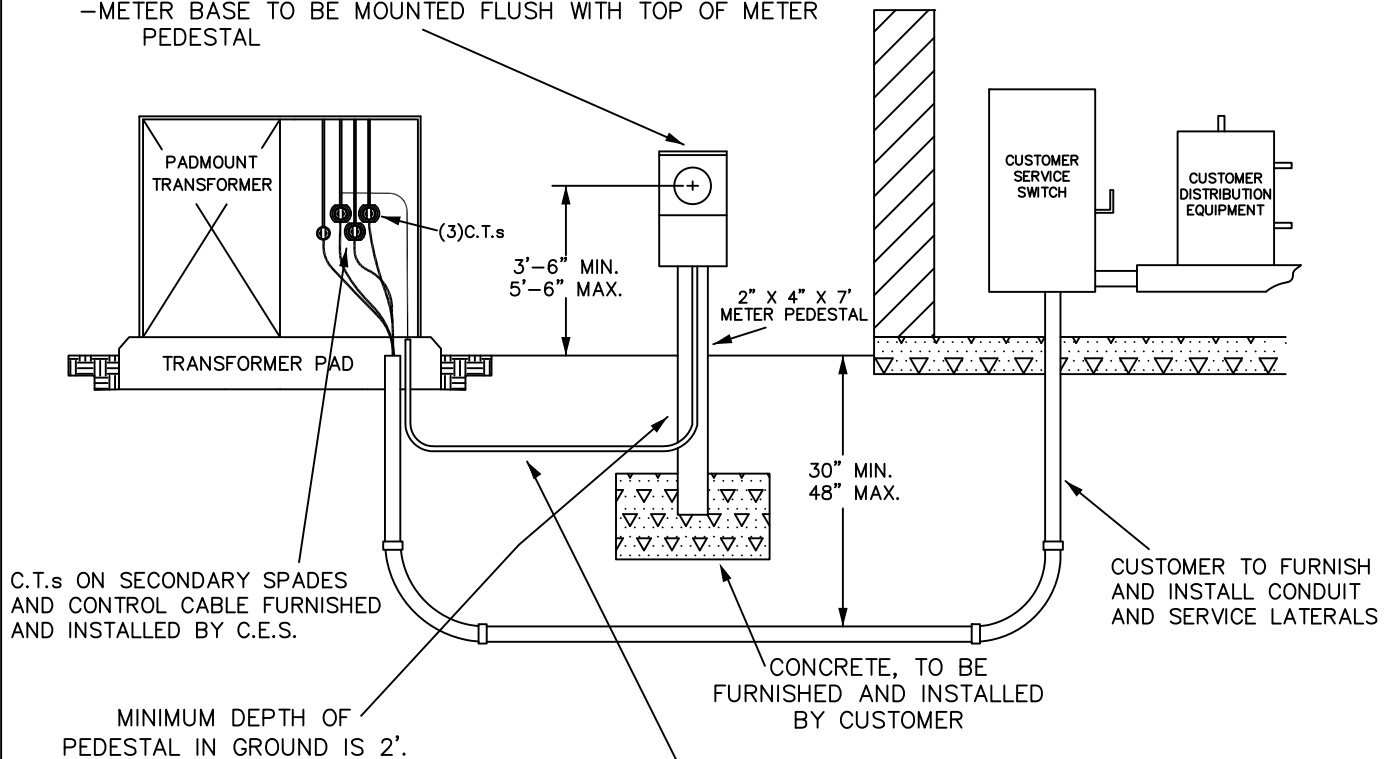
ALTERNATE TWO STORY RESIDENTIAL OVERHEAD ELECTRICAL SERVICE INSTALLATION
(MUST BE PRE-APPROVED BY CES)

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	CES3004
DATE: MARCH, 2005		SHEET 3 OF 3

NOTES

1. THIS METHOD OF SERVICE MUST BE APPROVED BY A QUALIFIED C.E.S. EMPLOYEE.
2. METER SOCKET MOUNTED OUTDOORS ON A PEDESTAL OR OUTSIDE WALL OF BUILDING.
3. C.E.S. TO MAKE ALL SERVICE LATERAL CONNECTIONS AT PADMOUNT TRANSFORMER AND CONNECTION INSIDE METER SOCKET AND SECONDARY COMPARTMENT OF TRANSFORMER.
4. C.T.s TO BE INSTALLED IN SECONDARY COMPARTMENT OF THE PADMOUNT TRANSFORMER BY A QUALIFIED CES EMPLOYEE.
5. THIS METHOD OF SERVICE IS TYPICAL WHEN ONLY ONE 3Ø CUSTOMER IS SERVED FROM A PADMOUNT TRANSFORMER.
6. METER AND/OR METER CABINET SHALL NOT BE MOUNTED ON THE PADMOUNT TRANSFORMER.
7. TRANSFORMER PAD MUST BE INSTALLED AT LEAST 12' FROM EDGE OF OVERHANG OF BUILDING TO EDGE OF PAD & 16' FROM ANY DOOR TO EDGE OF PAD & 3' BEHIND CURB
8. METER BASES MUST BE LABLED - SEE SECTION 10.2 IN CONTRACTORS MANUAL

-METER CABINET / RINGLESS METER SOCKET / METER PEDESTAL WILL BE SUPPLIED BY CES, THIS EQUIPMENT MUST BE INSTALLED & MAINTAINED BY CUSTOMER
 -METER BASE TO BE MOUNTED FLUSH WITH TOP OF METER PEDESTAL



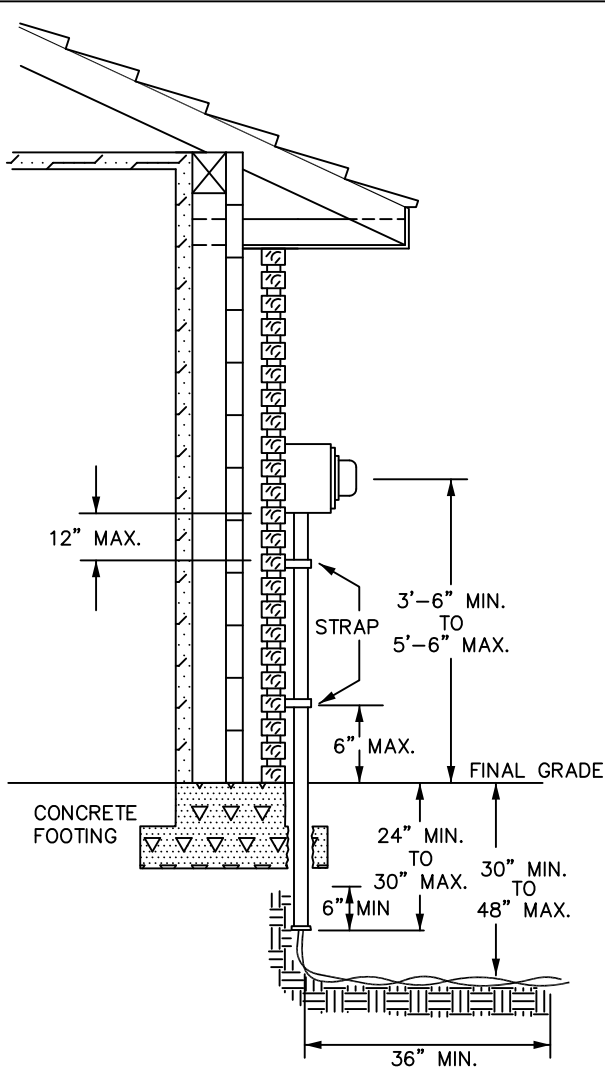
C.T.s ON SECONDARY SPADES AND CONTROL CABLE FURNISHED AND INSTALLED BY C.E.S.

MINIMUM DEPTH OF PEDESTAL IN GROUND IS 2'.

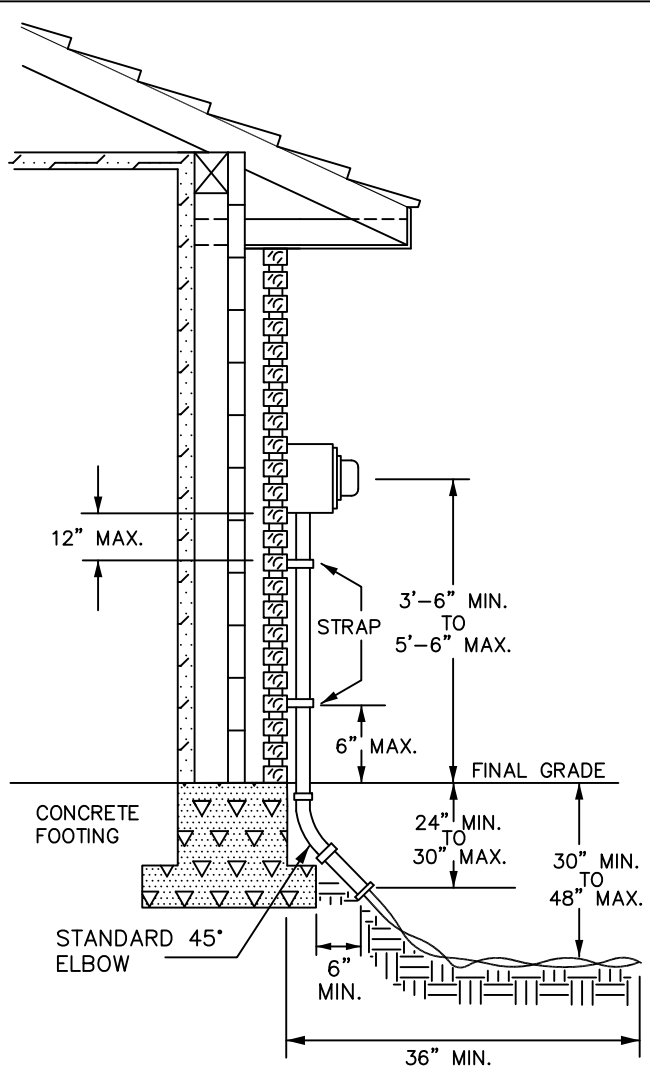
1.5" INCH RIGID METAL OR INTERMEDIATE METAL CONDUIT FURNISHED AND INSTALLED BY CUSTOMER.
 MINIMUM DISTANCE FROM TRANSFORMER = 3'-6"
 NO MORE THAN TWO (2) 90° BENDS
 MAXIMUM DISTANCE FROM TRANSFORMER SECONDARY COMPARTMENT TO METER SOCKET WILL BE DETERMINED BY C.E.S.

UNDERGROUND COMMERCIAL 3Ø TRANSFORMER
 RATED METER INSTALLATION WITH ONLY
 ONE CUSTOMER

	REVISIONS FEBRUARY, 2007	CARTERSVILLE ELEC. SYSTEM
DATE: JANUARY, 2007	OCTOBER, 2018	CES3006



PREFERRED



ALTERNATE

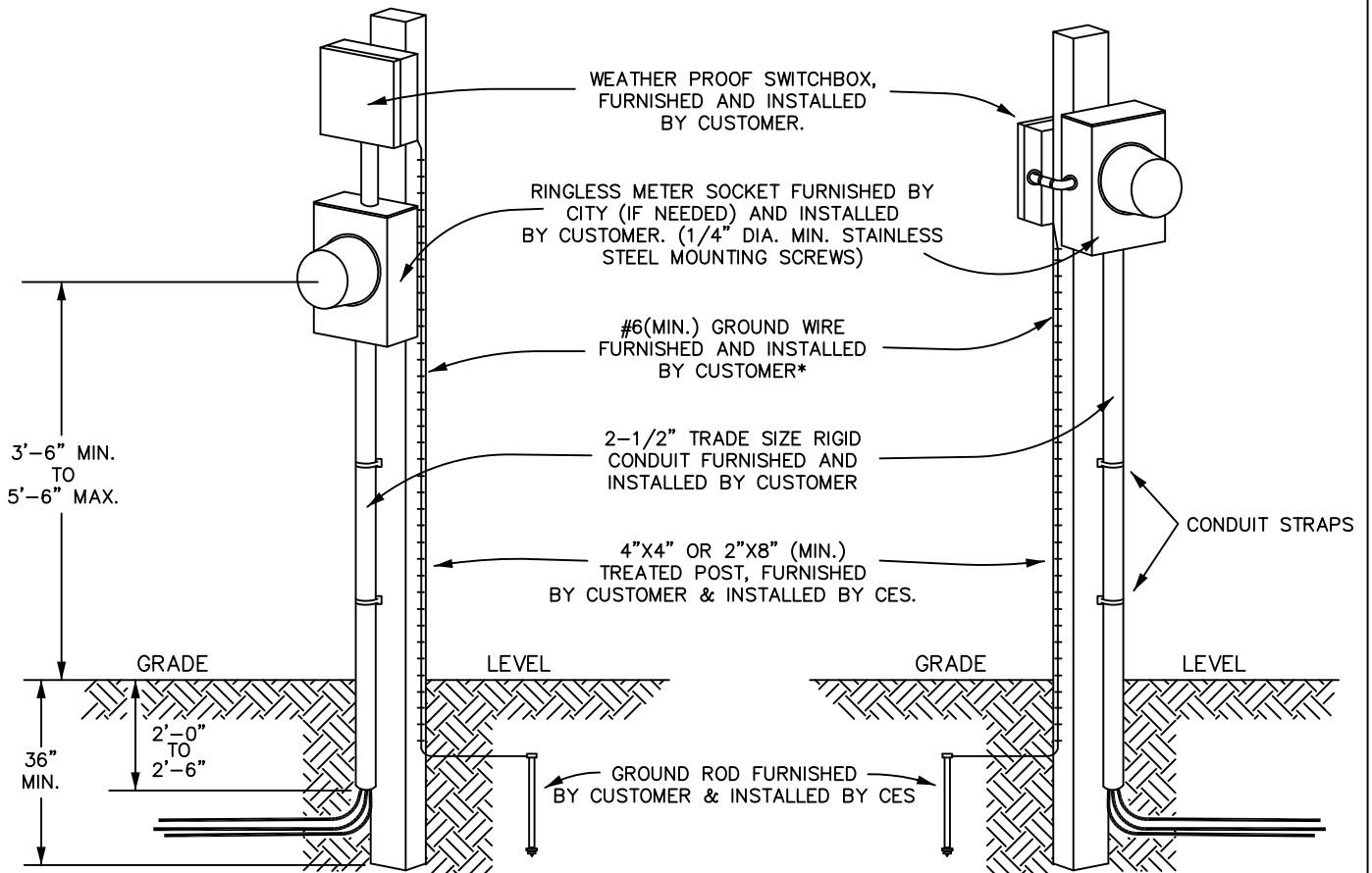
NOTE

1. CROSSHATCHED AREA DENOTES UNDISTURBED OR RE-COMPACTED SOIL DIRECTLY BENEATH CABLE (EXTENDING 36" MIN. FROM BUILDING) AND CONDUIT (OR ELBOW) TO PREVENT LATER SETTLING OF CABLE AND CONDUIT. FAILURE TO PROVIDE COMPACT SOIL MAY RESULT IN DAMAGE TO CABLES, CONDUIT, AND METER SOCKET. 2 1/2" TRADE SIZE CONDUIT FURNISHED AND INSTALLED BY CUSTOMER.
2. FROM BOTTOM OF METER SOCKET TO BELOW GROUND LEVEL WILL BE A CONTINUOUS RUN OF CONDUIT. ANY DEVIATION WILL REQUIRE C.E.S. APPROVAL.
3. IF METER SOCKET IS INSTALLED ADJACENT TO OBSTRUCTION SUCH AS A CONCRETE SIDEWALK OR DRIVEWAY, CONDUIT SHALL EXTEND CONTINUOUSLY FROM METER BASE TO A POINT BEYOND OBSTRUCTION.
4. ALL METER LOCATIONS MUST BE APPROVED BY CARTERSVILLE ELECTRIC SYSTEM.
5. ONLY RINGLESS METER SOCKETS MAY BE USED.

TYPICAL RESIDENTIAL
UNDERGROUND INSTALLATION

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	FEBRUARY, 2007	
DATE: JANUARY, 2007	OCTOBER, 2018	CES3007

NOTE TO CUSTOMER: **DO NOT** INSTALL POST OR GROUND ROD, CES EMPLOYEES WILL INSTALL THE SERVICE POLE AND GROUND ROD.

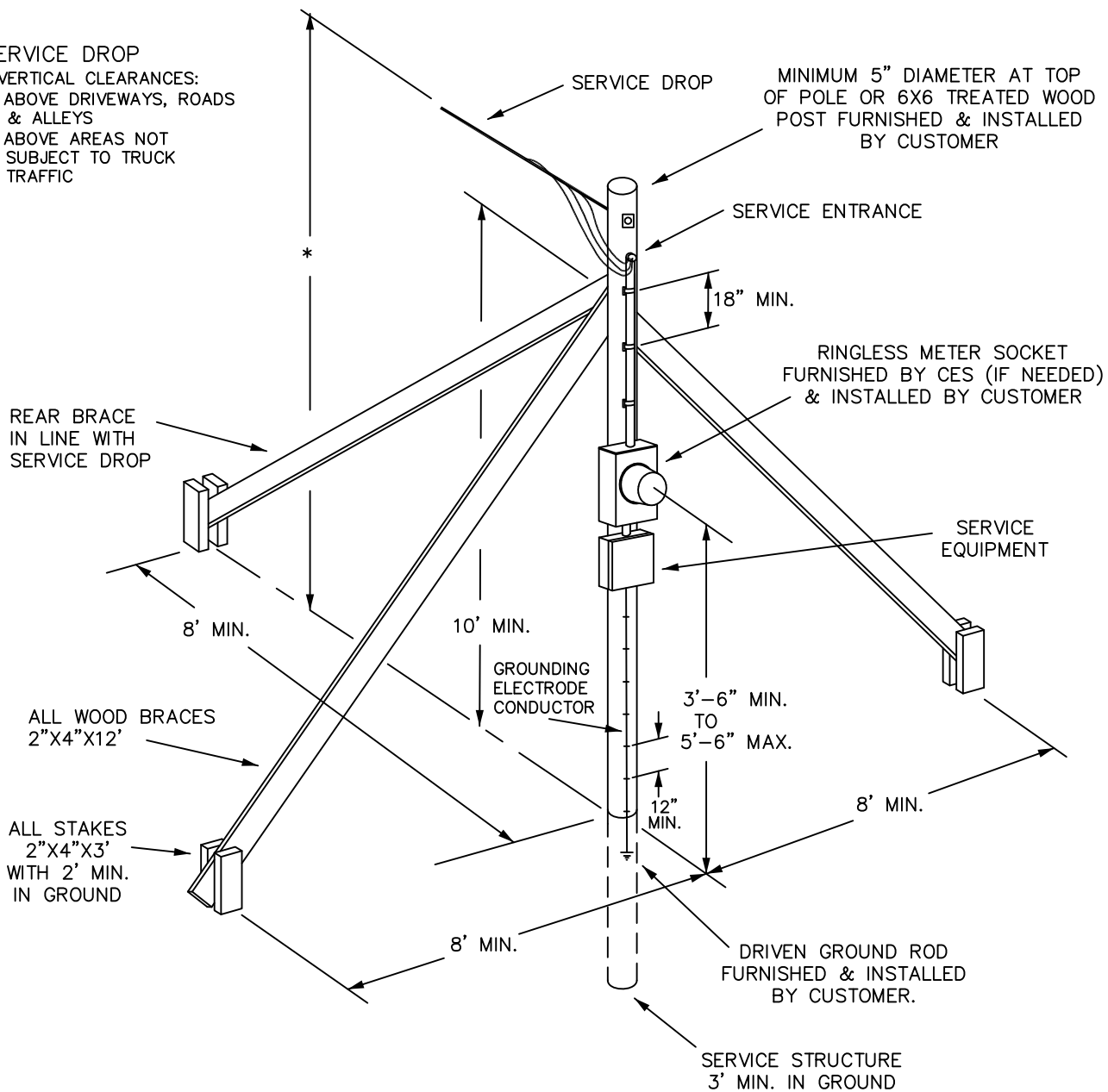


*GROUND WIRE SHALL NOT ENTER, PASS THROUGH, OR TERMINATE INSIDE METER SOCKET.

TEMPORARY, UNDERGROUND, RESIDENTIAL SERVICE STRUCTURE

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	FEBRUARY, 2007	CES3008
DATE: JANUARY, 2007	OCTOBER, 2018	

* SERVICE DROP
 MINIMUM VERTICAL CLEARANCES:
 16' 6" - ABOVE DRIVEWAYS, ROADS
 & ALLEYS
 12' 6" - ABOVE AREAS NOT
 SUBJECT TO TRUCK
 TRAFFIC



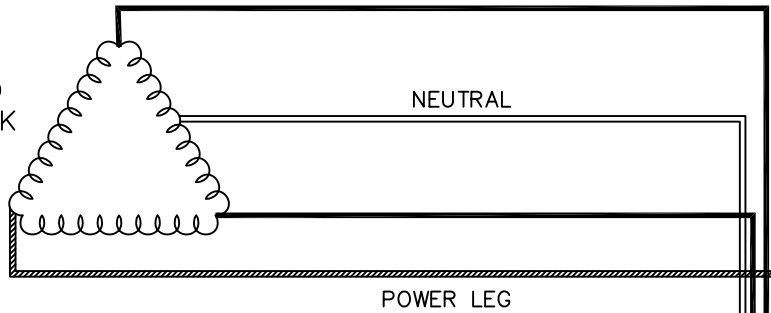
CUSTOMER SHALL FURNISH, INSTALL AND MAINTAIN:

- A. TREATED WOOD SERVICE STRUCTURE RATED FOR IN GROUND USE WITH BRACES AND STAKES TO BE STRUCTURALLY SOUND
- B. SERVICE ENTRANCE CABLE AND CONDUIT WHERE REQUIRED
- C. SERVICE DISCONNECT
- D. GROUND ROD WITH #6 MINIMUM COPPER GROUNDING ELECTRODE CONDUCTOR
- E. GROUNDING ELECTRODE CONDUCTOR SHALL NOT ENTER, PASS THROUGH OR TERMINATE WITHIN METER SOCKET.

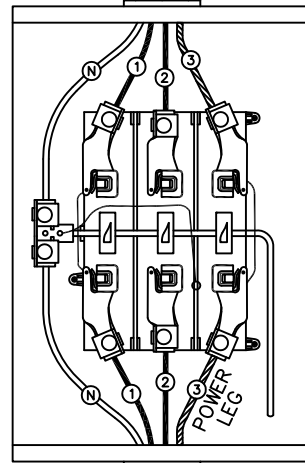
TYPICAL STRUCTURE FOR TEMPORARY OVERHEAD SERVICE

	REVISIONS _____ OCTOBER, 2018	CARTERSVILLE ELEC. SYSTEM
DATE: JANUARY, 2007		CES3009

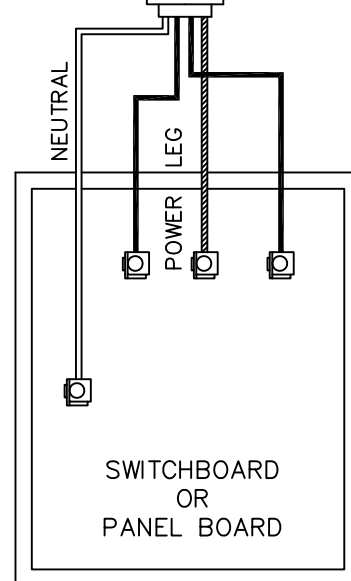
DELTA CONNECTED
TRANSFORMER BANK



POWER LEG MUST BE "C" PHASE IN
METER SOCKET FOR CORRECT
METER REGISTRATION.



POWER LEG MUST BE "B" PHASE IN
CUSTOMER'S SWITCHBOARD OR PANELBOARD
TO COMPLY WITH NATIONAL ELECTRICAL CODE



POWER LEG CONNECTION ON 3 – PHASE, 4 – WIRE DELTA CONNECTED SYSTEMS

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
DATE: MARCH, 2005	_____	CES3010

Customer Name: _____ Phone #: _____

Service Address: _____ Date: _____

Account Number (if existing customer): _____

Electrical Contractor: _____ General Contractor: _____

Property Owner: _____ Electrical Engineer: _____

DESIRED SERVICE CHARACTERISTICS:

Method of Service Wanted? OVERHEAD UNDERGROUND

Service Voltage Wanted? circle needed voltage
 120VAC 120/240VAC 120/208VAC 277/480VAC SINGLE PHASE OR THREE PHASE

Service Size Wanted? _____ Wires Size to be Used for Service Entrance Conductors? _____

Date Temporary Service Will Be Needed? _____ Date Permanent Service Will Be Needed? _____

Are Any of the Following Needed? Fault Currents or Motor Starting Increments or Confirmation of Service
 Send this information to: enter name / address / email / phone # _____

STRUCTURE INFORMATION:

Is this a Business or Residence? _____

Type of Structure? _____ Total Square Feet? _____

Square Feet Heated/Cooled? _____ Square Feet Warehouse or Garage? _____

LOAD INFORMATION: Will Gas be Used? YES / NO

What Appliances? (circle all that apply) STOVE OVEN WATER HEAT HEATING ETC

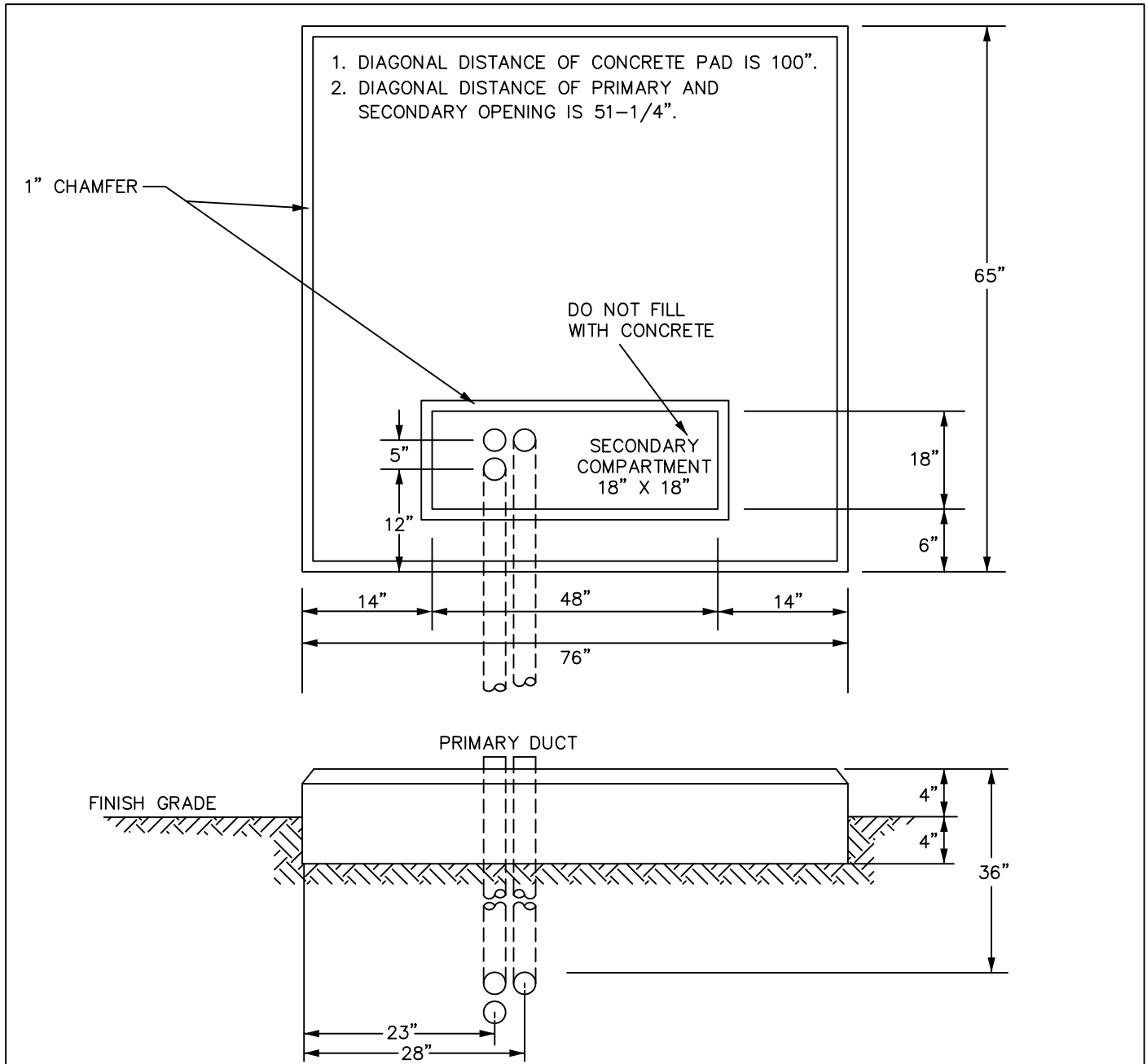
ENTER LOAD in kW, Tons or HP ONLY, DO NOT ENTER AMPS

DESCRIPTION	1 PHASE	3 PHASE
Interior Lights		
Exterior Lights		
Air Conditioning (heatpump or regular A/C) # of Units = _____		
Size of Unit #1		
Size of Unit #2		
Size of Unit #3		
Heating (heat strips either for heatpump or electric Heat) # of Units = _____		
Size of Unit #1		
Size of Unit #2		
Size of Unit #3		
Air Handling Equipment # of Units = _____		
Cooking Equipment # of Units = _____		
Water Heating # of Units = _____		
Refrigeration # of Units = _____		
Receptacles		
Motors # of Units = _____		
Misc. Power		
Largest Single Motor That Will Be Connected to This Service		

CES USE ONLY Contract Required?		Contract Executed?	
DEMANDS (kW)	Existing	Additional or Anticipated in Future	Total
SUMMER			
WINTER			

Added Revenue: _____ Rate: _____ kW Minimum: _____ Annual kWh: _____

METERING INFO:
 Meter Location: Pedestal / Building / Pole / Other _____
 Meter Form to Be Used: _____ CT Quantity/Size/Type/Mounting/Arrangement: _____

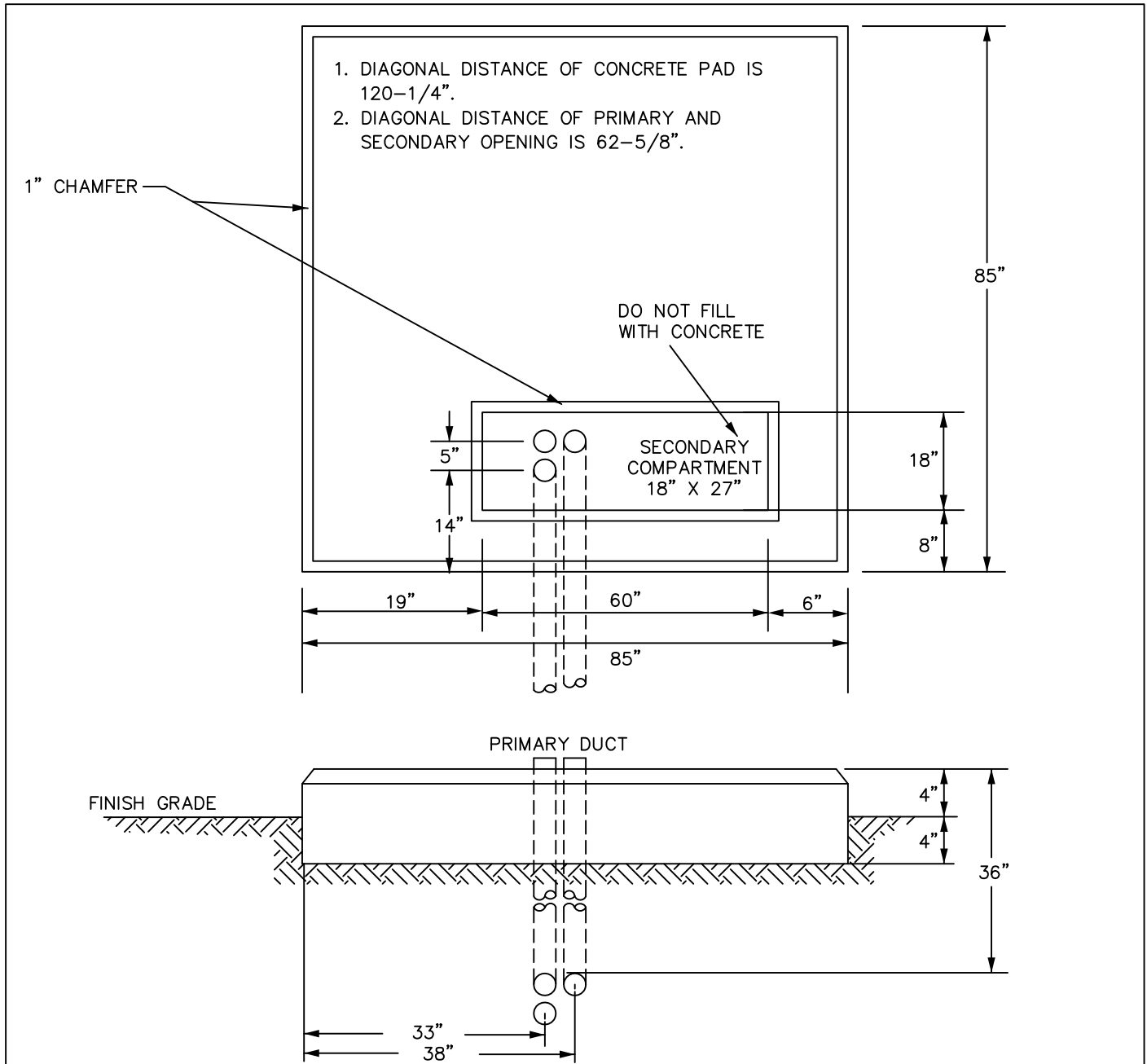


NOTES:

1. LOCATION OF PAD MUST BE APPROVED BY CES.
2. SERVICE DUCT SHALL BE LOCATED IN THE EXTREME RIGHT SIDE OF THE SECONDARY COMPARTMENT.
3. PRIMARY DUCT SHALL EXTEND BEYOND EDGE OF PAD IN DIRECTION OF INCOMING PRIMARY CABLES.
4. MATERIAL FOR PRIMARY DUCT SYSTEM WILL BE FURNISHED BY CES.
5. THE PAD SHALL HAVE A MINIMUM CLEARANCE OF 12' FROM ALL BUILDING OVERHANGS, & 16' FROM ALL DOORWAYS. A MINIMUM CLEARANCE OF 3' SHALL BE MAINTAINED FROM ALL OBSTRUCTIONS & CURBS.
6. PAD LOCATION MUST BE TAMPED TO 95% COMPACTION BY CUSTOMER.
7. PAD WILL BE SUPPLIED BY CES.

STANDARD PAD FOR 45-1000 KVA RADIAL OR LOOP FEED PAD MOUNTED TRANSFORMERS

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	CES3012
DATE: JANUARY, 2007		

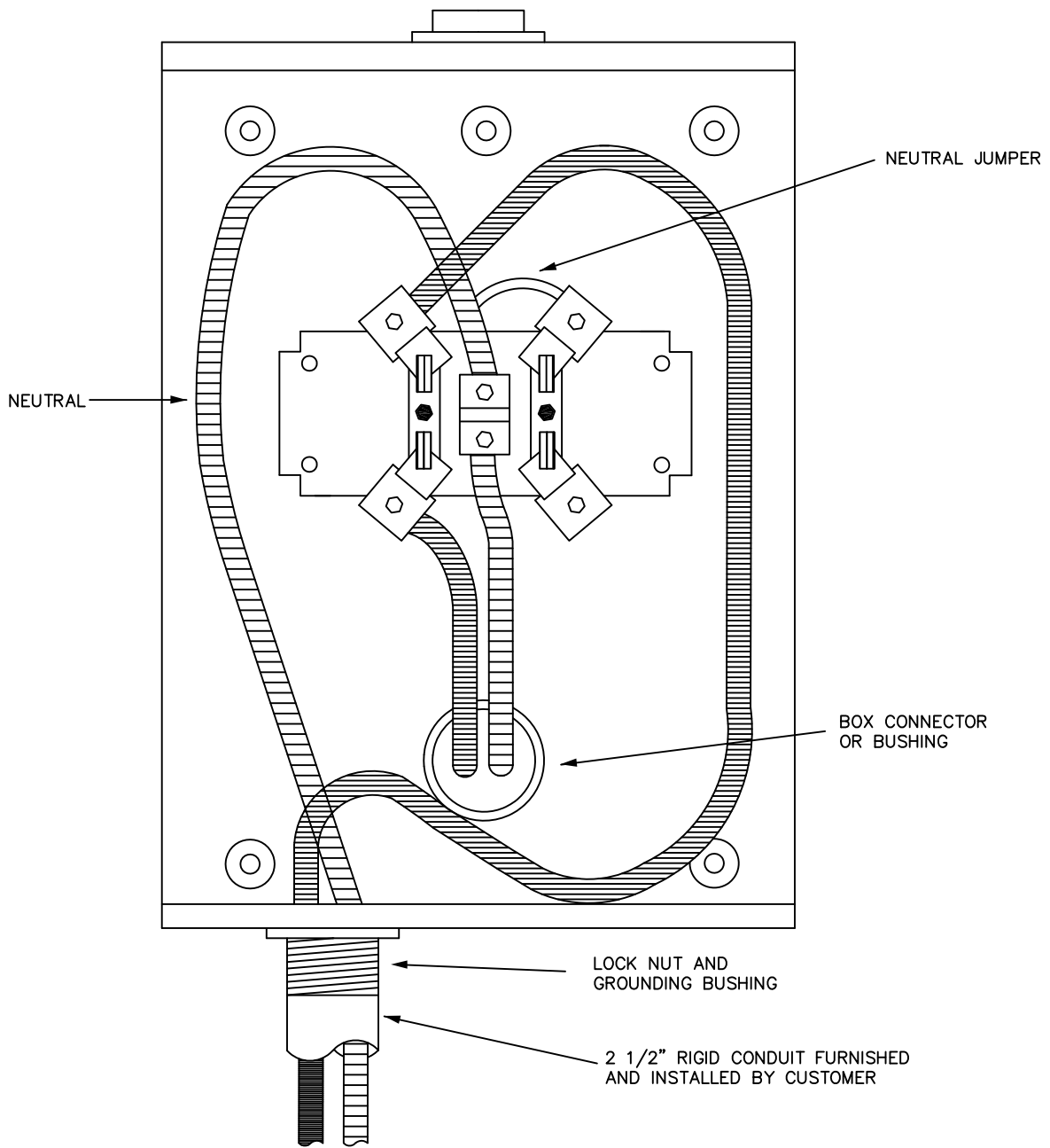


NOTES:

1. LOCATION OF PAD MUST BE APPROVED BY CES.
2. SERVICE DUCT SHALL BE LOCATED IN THE EXTREME RIGHT SIDE OF THE SECONDARY COMPARTMENT.
3. PRIMARY DUCT SHALL EXTEND BEYOND EDGE OF PAD IN DIRECTION OF INCOMING PRIMARY CABLES.
4. MATERIAL FOR PRIMARY DUCT SYSTEM WILL BE FURNISHED BY CES.
5. THE PAD SHALL HAVE A MINIMUM CLEARANCE OF 12' FROM ALL BUILDING OVERHANGS, & 16' FROM ALL DOORWAYS. A MINIMUM CLEARANCE OF 3' SHALL BE MAINTAINED FROM ALL OBSTRUCTIONS & CURBS.
6. PAD LOCATION MUST BE TAMPED TO 95% COMPACTION BY CUSTOMER.
7. PAD WILL BE SUPPLIED BY CES.

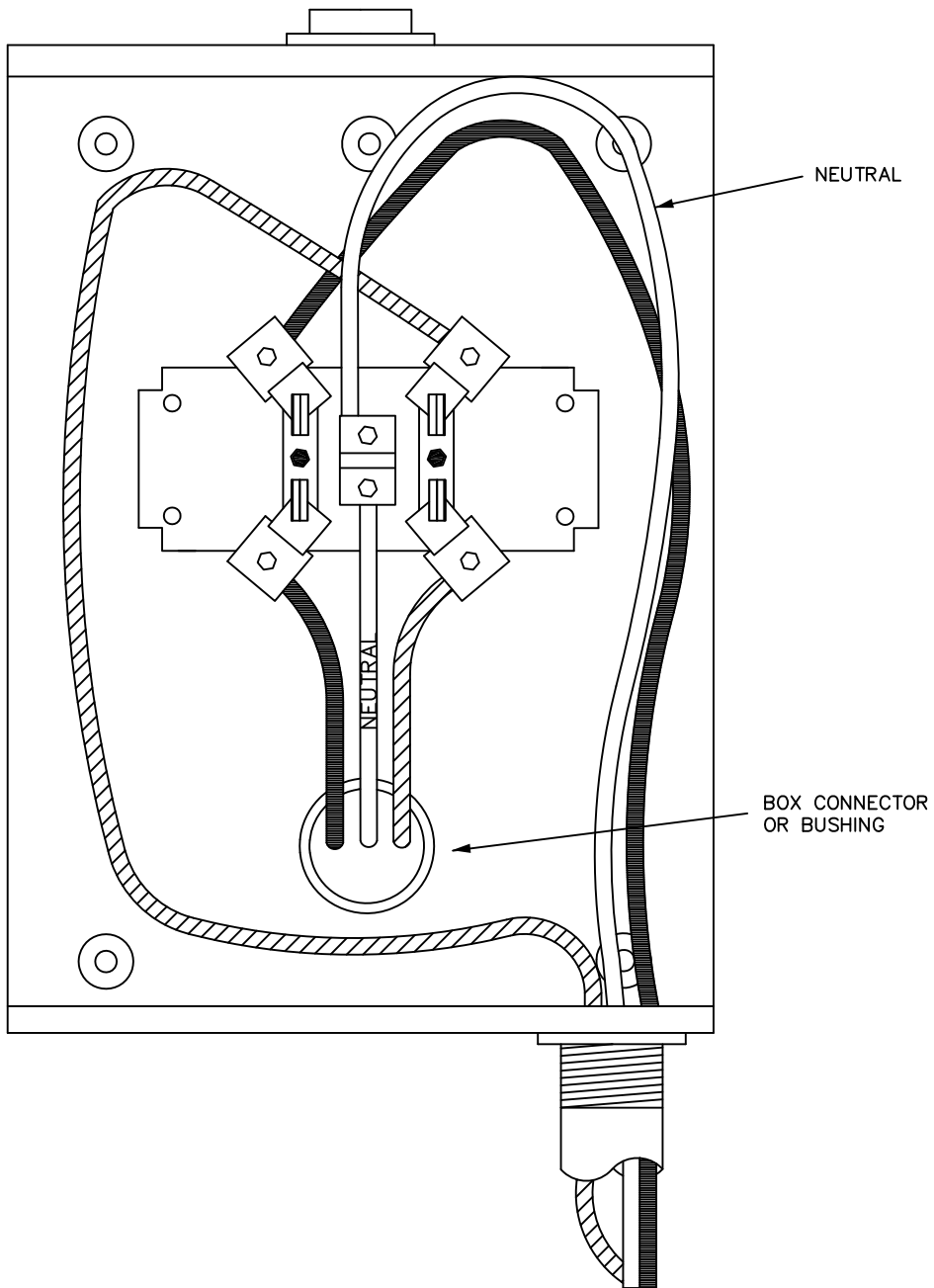
STANDARD PAD FOR 1000-2500 KVA RADIAL OR LOOP FEED PAD MOUNTED TRANSFORMERS

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	
DATE: JANUARY, 2007		CES3013



TYPICAL METER INSTALLATION FOR SINGLE
 PHASE 2-WIRE UNDERGROUND 120V SERVICE

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
DATE: MARCH, 2005	_____	CES3014

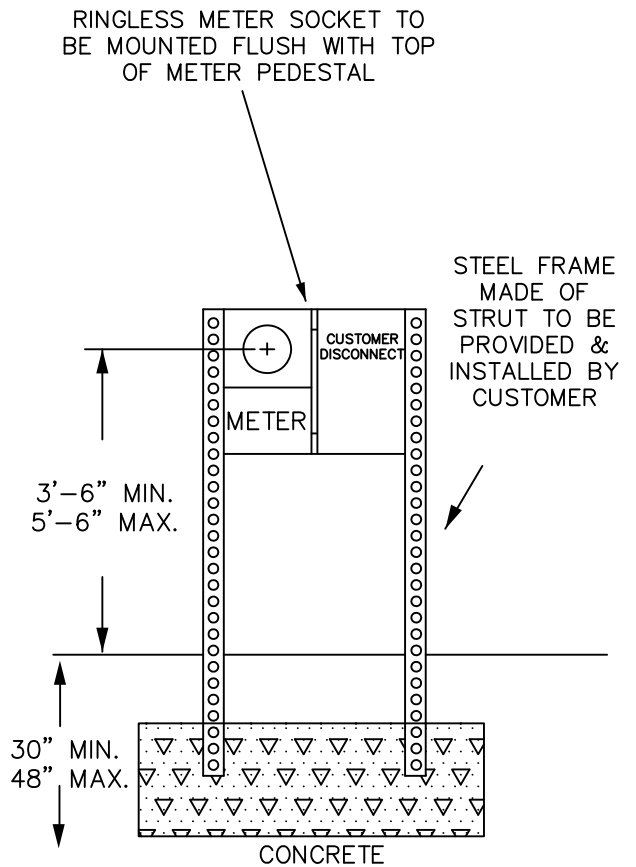
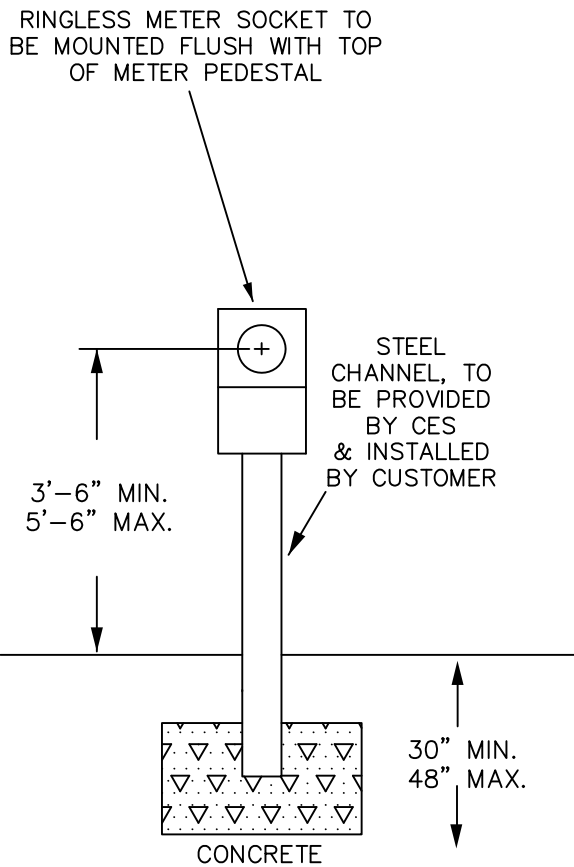


TYPICAL METER INSTALLATION FOR SINGLE
PHASE 3-WIRE UNDERGROUND 240V SERVICE

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
DATE: JANUARY, 2007	_____	CES3015

NOTES:

1. THIS METHOD OF SERVICE MUST BE APPROVED BY A QUALIFIED C.E.S. EMPLOYEE.
2. IF USING 4"X4" STEEL CHANNEL, CUSTOMER DISCONNECT SHALL NOT BE LOCATED ON CHANNEL.
3. CUSTOMER MUST INSTALL CONDUIT (MINIMUM 2-1/2") TO A DEPTH OF AT LEAST 24" (MAX. 30") IN GROUND.
4. CUSTOMER TO INSTALL GROUND ROD(S) AS REQUIRED BY ELECTRICAL INSPECTOR.
5. C.E.S. TO MAKE ALL SERVICE LATERAL CONNECTIONS AT TRANSFORMER & LINE SIDE METER CONNECTIONS.
6. METER SOCKET MUST BE MOUNTED TO A PERMANENT STRUCTURE (NOT WOOD).



METER PEDESTAL SERVICE INSTALLATION

	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	CES3016
DATE: JANUARY, 2007		

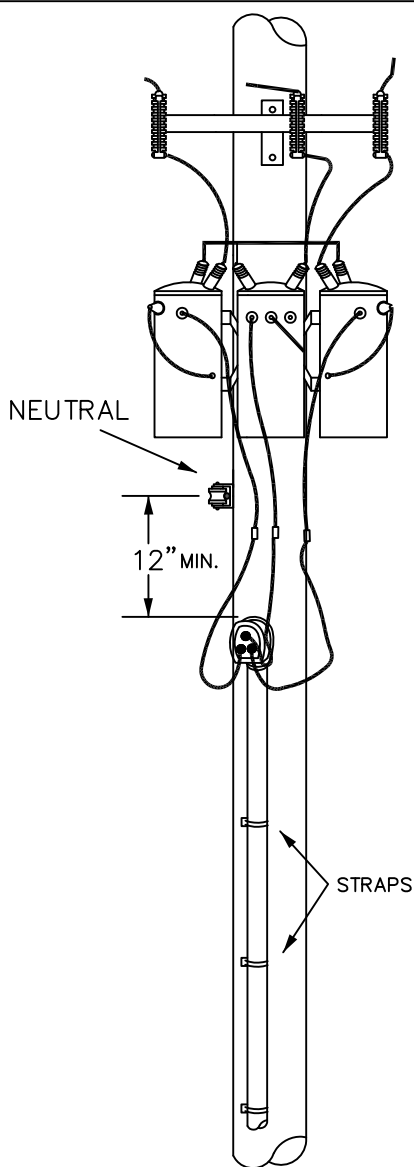


FIGURE 1

MAXIMUM OF (1) CONDUIT

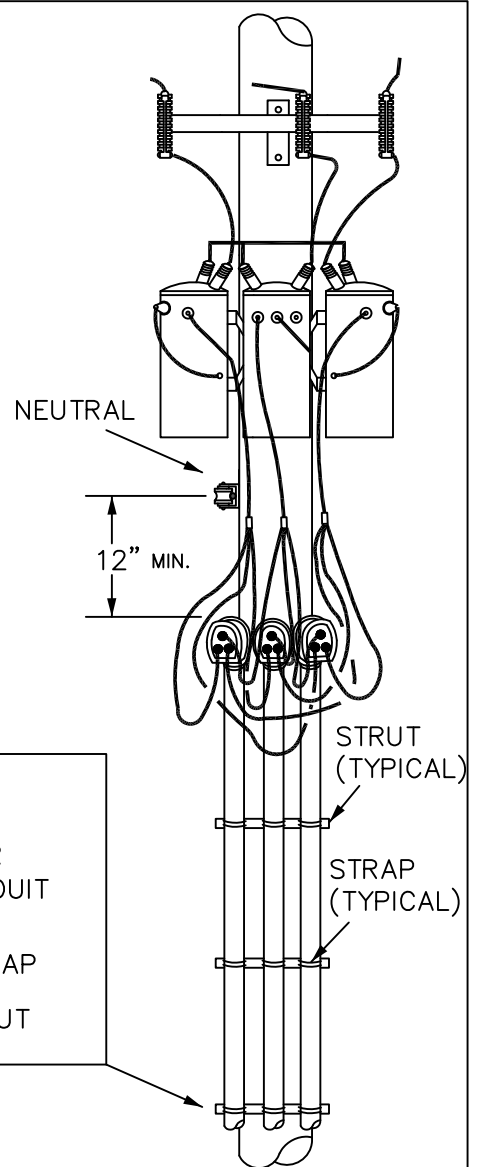
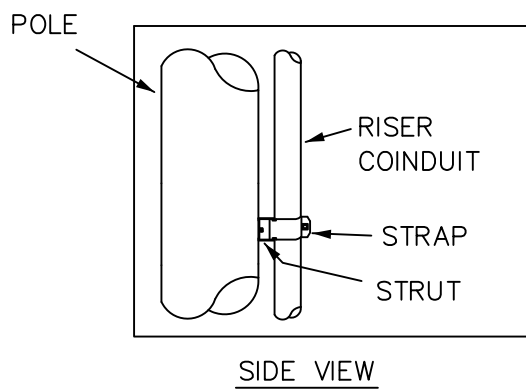


FIGURE 2

MAXIMUM OF (3) CONDUITS

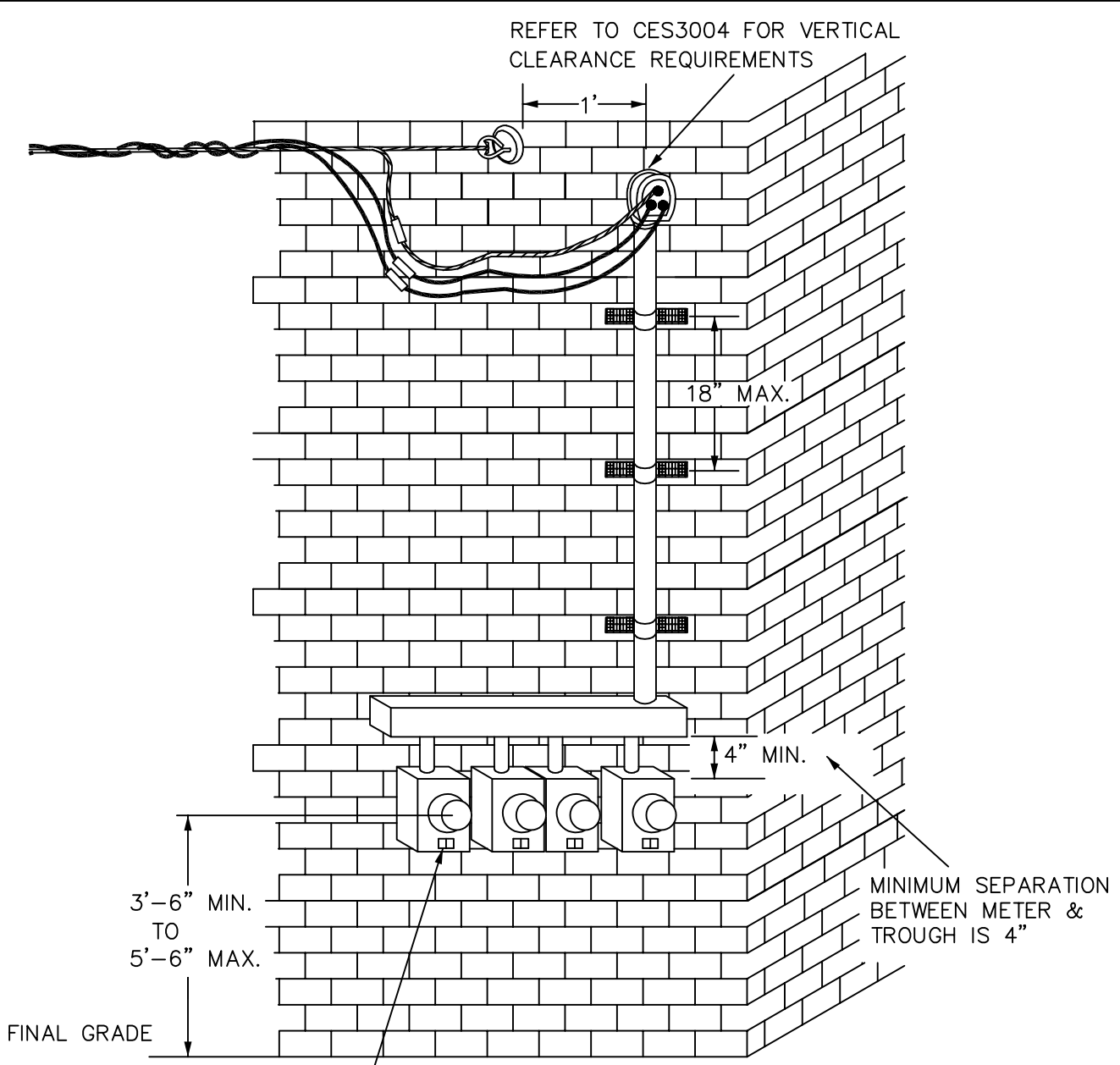


NOTES:

1. THIS METHOD OF SERVICE MUST BE APPROVED BY C.E.S. EMPLOYEE.
2. NO MORE THAN 1 METALLIC CONDUIT WILL BE ALLOWED TO BE ATTACHED DIRECTLY TO C.E.S. POLE. SEE FIGURE 1 ABOVE.
3. NO MORE THAN 3 METALLIC CONDUITS WILL BE ATTACHED TO BRACKETS ATTACHED TO CES POLES. SEE FIGURE 2 ABOVE.
4. TOP OF CUSTOMERS WEATHER HEAD TO BE IN CLOSE PROXIMITY TO C.E.S. SYSTEM NEUTRAL BUT NOT CLOSER THAN 12 INCHES.
5. CUSTOMER IS RESPONSIBLE FOR COMPLYING WITH ALL RELEVANT OSHA AND GEORGIA HIGH-VOLTAGE SAFETY ACT REQUIREMENTS.

CUSTOMER OWNED CONDUIT ATTACHED TO CES POLES

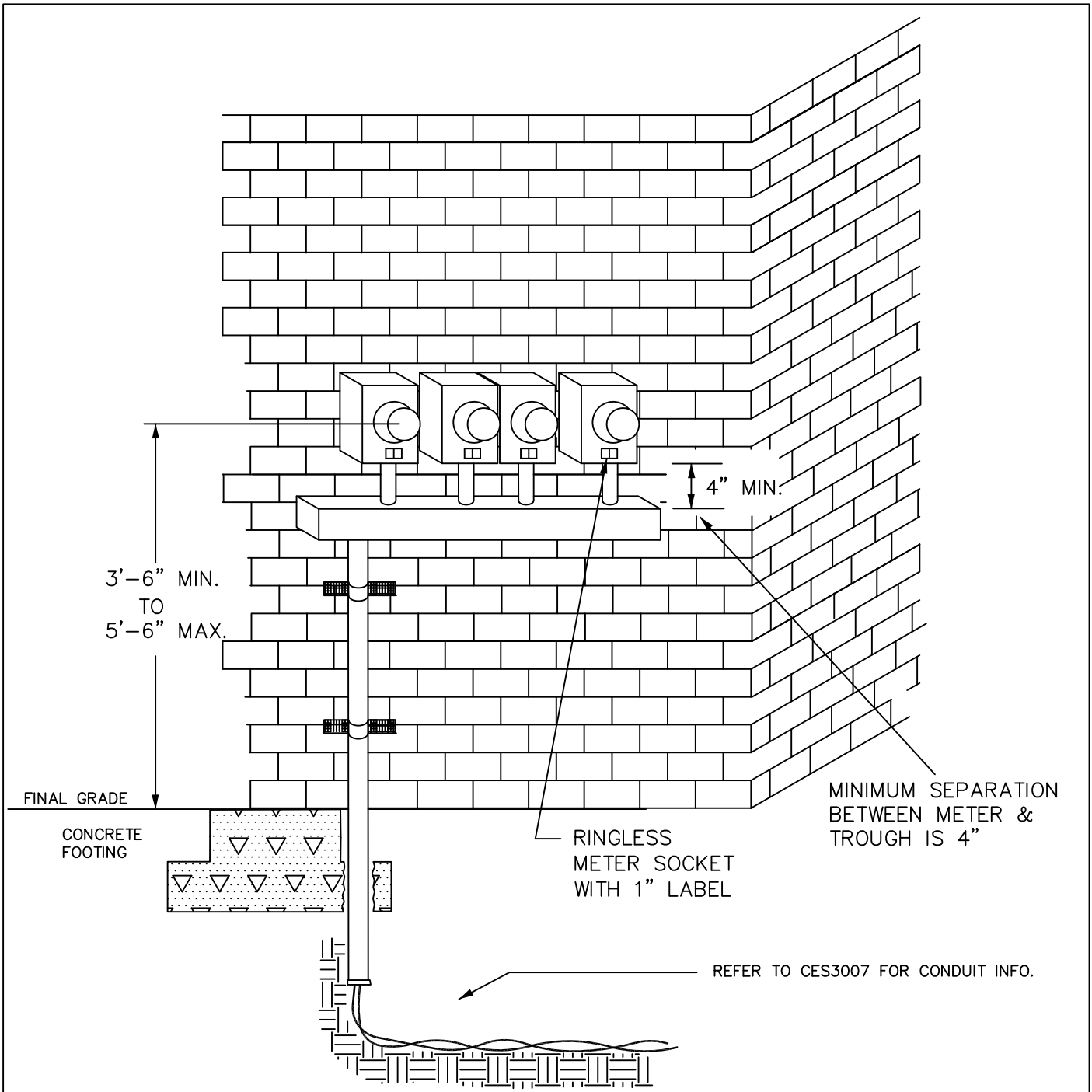
DATE: JANUARY, 2007	REVISIONS _____	CARTERSVILLE ELEC. SYSTEM
	OCTOBER, 2018	CES3017



- NOTE:
1. MINIMUM SEPARATION BETWEEN METER SOCKET AND TROUGH IS 4".
 2. ALL METER LOCATIONS MUST BE APPROVED BY CARTERSVILLE ELECTRIC SYSTEM.
 3. ALL METER SOCKETS SHALL BE LABELED. BEFORE A METER CAN BE INSTALLED. SEE SECTION 10.2.
 4. SEE CES3004 SHEET 1 OF 3 FOR ADDITIONAL CLEARANCE AND WORKSPACE REQUIREMENTS.

TYPICAL MULTI-METER ELECTRICAL SERVICE INSTALLATION
(OVERHEAD)

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NOTES:

1. MINIMUM SEPARATION BETWEEN METER SOCKET AND TROUGH IS 4"
2. ALL METER LOCATIONS MUST BE APPROVED BY CARTERSVILLE ELECTRIC SYSTEM.
3. ALL METER SOCKETS SHALL BE LABELED. BEFORE A METER CAN BE INSTALLED. SEE SECTION 10.2.
4. ONLY RINGLESS METER SOCKETS ARE ALLOWED.

TYPICAL MULTI-METER ELECTRICAL SERVICE INSTALLATION
(UNDERGROUND)

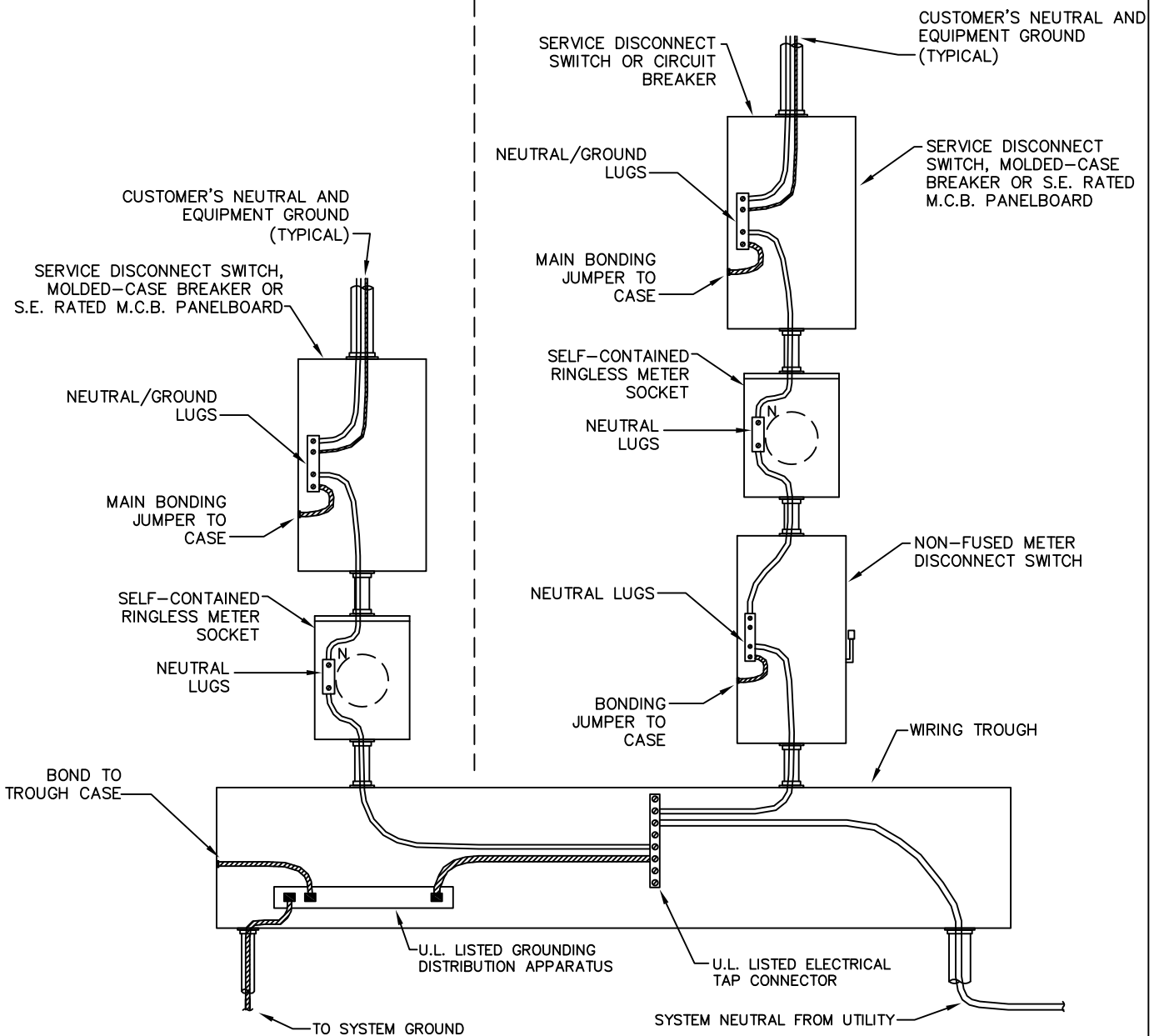
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	OCTOBER, 2018	

NOTES

1. ALL NEUTRAL, BONDING AND GROUNDING CONDUCTORS SHALL COMPLY WITH ARTICLE 250 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
2. THIS DRAWING APPLIES TO OVERHEAD AND UNDERGROUND SERVICE INSTALLATIONS, SINGLE-PHASE OR 3-PHASE.
3. PHASE LUGS NOT SHOWN FOR CLARITY.
4. FOR 480Y/277V SERVICES ONLY, A METER DISCONNECT SWITCH MUST BE INSTALLED AHEAD OF A SELF-CONTAINED METER.

TYPICAL FOR SERVICE LESS THAN 480V

TYPICAL FOR 480V SERVICE



TYPICAL SELF-CONTAINED, MULTI-METER SERVICE AND TROUGH GROUNDING SCHEMATIC FOR TWO TO SIX METERS

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DATE: APRIL 2007		CES3020